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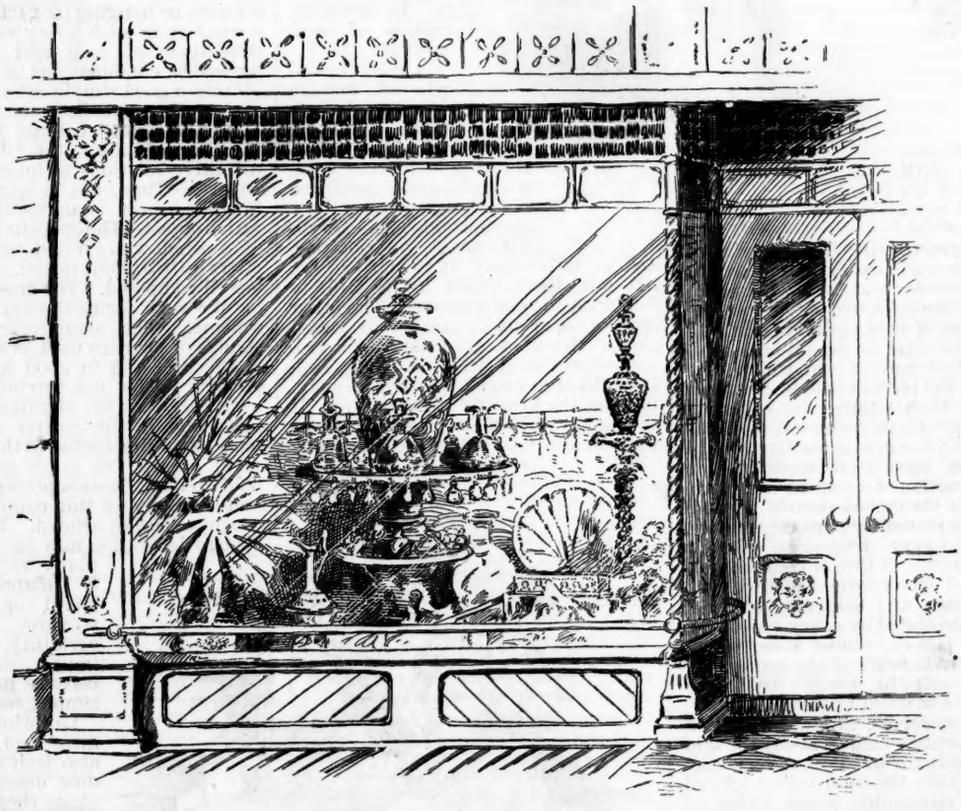
[Original Communication.]

THE ARTISTIC DECORATION OF DRUG-STORE WINDOWS.

THE increased attention paid to the general decoration of shops and places of business at large is one excellent result of the vigorous movement in favor of popular art-education which has been on foot in the United States during the past ten years. The decoration of shop windows, to the end of properly displaying wares and combining intrinsic attractiveness with judicious advertising of objects for sale, as well as of professional attributes, offers a problem as interesting as any that applied art can suggest. A row of tastefully decorated shop-windows in a conspicuous city street may be regarded as a popular picture-gallery or museum, offering gratuitous pleasure and education to high and low, and at the same time suggesting a thousand wants to the passer-by, which can only be supplied by the business brains behind the brilliant display, and thus acting as a stimulus to trade and production. No care is too great, no thought too profound to be bestowed upon the decoration of shop-windows. In many cases the amount of custom attracted to a shop depends entirely upon the appearance of its windows. The dry-goods firms realize this truth as keenly as any. Most of them keep in their employ what are known as window-dressers, whose specialty is the decoration of windows. Even the largest establishments alter the arrangement of their windows every day or two, and display some of their choicest fabrics to the best practical and the best artistic advantage, knowing that the return in dollars and cents will more than repay them for the pains taken to attract custom. Not so with the average drug-store. The ordinary druggist is apt to content himself, in the matter of window-decoration, with a phalanx of cod-liver oil bottles, flanked by some ancient sponges and a number of superannuated chest protectors, the whole covered with dust and trampled beneath the feet of cohorts of flies. He arranges his window, say on New-Year's day, and with a few minor alterations, it remains untouched until the following New-Year's day. There is no doubt that American drug-stores are a long way behind other shops in the matter of window-decoration. Even in the principal thoroughfares of New York, the drug-store windows are not equal in attractiveness to the other windows along the line of fashionable trade. The prevailing tone of these drug-store windows seems to be that of indifference or carelessness. One feels that the druggist either considers the decoration of his windows beneath the dignity of his profession, or else thinks that it is really not worth his while, practically, to trouble himself about such a minor affair as artistic detail of arrangement with regard to his stock of goods. Therein he makes a mistake, and in the course of time his account-books will give him a well-merited lesson on the subject.

Many persons are frightened by the use of the word "artistic," probably because it is so shamefully misused and abused by pompous and pretentious writers. Good art, like everything else that is genuinely good, is the simplest thing in the world. It is the direct outgrowth of nature, and one of its most important elements is common sense. In the matter of window-decorations, as in many other cases, cleanliness may be recommended as a primary essential of artistic treatment. The brass ledges which inclose the windows of most city drug stores may be regarded as forming the frame of a picture. The more harmonious the relation between the frame and the picture, the better the impression produced on the spectator. Among artists, dirt is sometimes considered to give tone to pictures and picture-frames. Dirt and dinginess are not, however, desirable on the brasses of druggists' windows, or on the windows themselves. These brasses should be polished until they shine like gold in the brilliant American sun-light. Observation proves that even the best city druggist frequently neglects this artistic essential —cleanliness. A druggist's window



should be primarily bright, cheerful, and attractive. The drug-store is apt to be associated in the public mind with disease and death, and everything should be done to weaken the necessarily disagreeable impression produced by the sight of a place connected with the physical trials of humanity. Every drug-store contains the elements necessary to the artistic decoration of its windows, but few druggists know how to combine or select the materials at hand. Every drug-store owns jars and pots of various sizes, pure and correct in general form and style, though intended solely for practical uses. They are quite as artistic as those sold confessedly for decorative purposes by manufacturers of drug-store goods; but only a well-trained taste would realize their superiority, and make capital of them accordingly. Some of the choicest bits of pottery to be

found in American *bric-à-brac* collections are nothing but the ordinary jars belonging to the village apothecaries of the Old World, despised by their original owners because of the humble ends they served.

In arranging a drug-store window, there are two elements to be considered, the artistic and the practical; the first must attract and please the passer-by, the second must lead him to purchase or to think of purchasing.

Let us first consider the artistic element. It is agreed among the highest authorities that the best art is also the simplest, and the most universally intelligible. No druggist need fear that by observing the principles of good

artistic decoration, he will overshoot his mark and repel his public instead of attracting it. The pictorial instinct is strong in every human breast. The love of color and the love of form, in some shape or other, enters into the composition of each individual intelligence. The window should be considered as the canvas on which the scheme of the picture is to be first outlined and then painted in, in broad masses, the details being left until the last. Color, form, composition of line and masses, must all be considered in the construction of a scheme of decoration. This statement sounds formidable, but is in reality perfectly simple. In color, every drug-store window should be rich. A love of color is characteristic of even the most undeveloped artistic sense, and brilliancy of color can be appreciated by every passer-by. The large jars of colored water which form the trade mark of the profession, and are seen in every drug-store window as a matter of conventionality, are, in themselves, fine color decorations. The same cannot always be said of them as to form. It is a very easy matter to take the solid colors offered by these jars, ruby, topaz, violet, or emerald green, for the key notes of the color-scheme, or, on the other hand, to form with the liquids such chromatic effects as shall be in harmony with the other objects of the decorative arrangement. One excellent decorative quality of these jars is the effect of broad masses of color which they present. Placed one above the other, at the sides of the windows, they "compose," as artists say, very well. When in this position, they should, if possible, be balanced by a solid mass of objects in the centre of the composition, something more than half as high as the lines formed by the jars. If the window be large, the treatment should be broad, and large objects should form the foundation of the decorative scheme; if small, the objects should be smaller and more attention should be paid to detail. Avoid placing two conspicuous objects of a kind in juxtaposition; beware of rows of things; cultivate a holy horror of successions of narrow bottles forming straight lines, either horizontally or vertically. A yearning for bottles in their windows is a common failing among druggists. These bottles are generally of the meanest, most utilitarian, and most medicinal order. No self-respecting person will look twice at a window that contains only a hundred or more repulsive phials of "Dr. Slow's Specific;" neither is the spectacle sufficiently enticing to warrant a prolonged gaze.

Let the druggist choose from the resources of his store those objects which seem to him most artistic and decorative from his own standpoint. Let him follow his own instincts in the matter, without distrust of his personal ability. Every human being is endowed with a certain amount of artistic instinct which simply requires developing, and the effort to use it is of material assistance in the process of evolution. The next step is to consider these objects carefully in their elementary relations of form and color, and to dispose of them to the best artistic and practical advantage, according to the primary canons of composition.

A good example of artistic window decoration is offered by the small illustration, showing a bronze vase, a geological specimen placed against a yellow chamois skin, some South American water-bottles, and a toilet-case. If the latter were left out, there would be no fault to find with the composition. The other objects form an admirably arranged group, the idea of renaissance grotesqueness in decoration being skilfully, though probably unconsciously, used as the keynote of the group. It is so good a bit of decoration, both as to form and color, that the incongruity of the toilet-case in idea and composition of line is made all the more apparent. The group should end with the last water-bottle. This illustration does not solve the problem of arranging every-day wares artistically. On the contrary, it distinctly separates the two ideas. It offers an artistic group composed of practically irrelevant objects, and makes the toilet-case, which represents the practical elements of decoration, a mere afterthought.

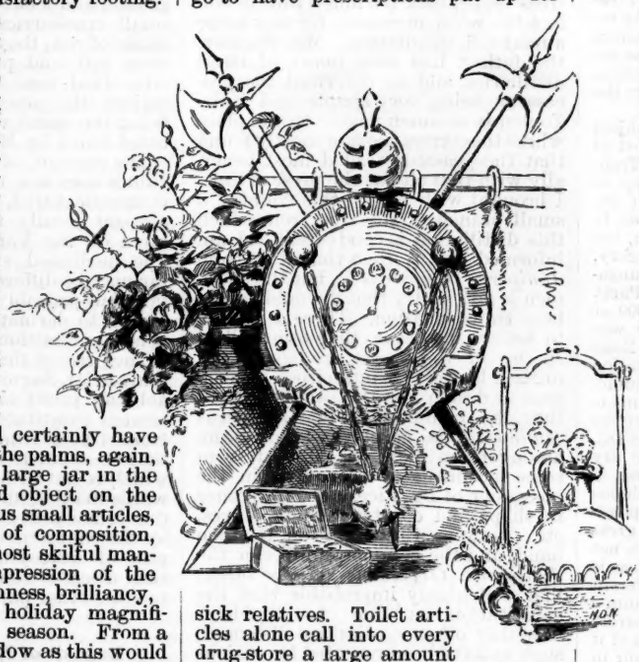
Floral accessories are always valuable in decoration, and nowhere are they more appropriate than in the adornment of drug-store windows. Large-leaved tropical plants, ferns, palms, and flowering shrubs may be used to advantage in a decorative scheme of this kind. At the present season, blossoming chrysanthemums in all shades of red and yellow could be combined in rich and harmonious effects of color, repeating in an admirable manner the leading chromatic ideas of the druggists' wares or colored jars. The cost of a few plants is trifling in comparison with the artistic and practical value of the results produced by their use. A fine ivy in a handsome jar forms a highly decorative accessory, and one that can be altered in arrangement to suit the disposition of the solid objects. In country neighborhoods, every garden offers a wealth of material from which the druggist may choose what best suits his purpose. Every meadow and bit of woodland has a thousand decorative floral forms awaiting the appreciative eye and hand. The simple, common flowers are as decorative as exotics and much more lasting. When flowers are not procurable, some green growth or other can always be found to take their place, either in city or country. Anything is better than the use of artificial flowers or plants. In every kind of artistic decoration, the natural forms are always the purest, and consequently the best adapted to the purpose. A mass of sponges, simply thrown together without apparent intention, or hanging in garlands about a window in such a way as to furnish gradations of tone and color and agreeable combinations of form, constitutes a good simple scheme of decoration. It symbolizes the higher side of the druggists' calling, and carries the mind of the spectator back to the primitive relations of humanity with nature. Then, too, a sponge, in its tangible aspect, is an essentially decorative object. The opposite illustration of a window decorated with sponges offers an excellent model. The group is well composed. The mass of sponge on the rock forms the keynote of the scheme. The arrangement of the strings of sponges used as accessories, is effective and in good artistic proportion. The toilet articles at the back carry out the significance of the idea, and in the matter of line and mass are well adapted to throwing the main object, the large sponge, into bold relief. The simplicity, breadth, and harmony of this composition are much to be commended. This idea of sponge-decoration may be applied in many ways and may be adapted to any kind or shape of window, with the certainty of producing a satisfactory, because natural and simple, result.

Large branches and masses of coral are also desirable as window decorations because they represent the natural forms and are valuable both for their composition of line and mass, and for their delicate neutral tints, which form a fine contrast with the strong elementary colors generally seen in druggists' windows. The simpler, broader, and more striking the general effect of the window, the better the impression upon the mind of the casual passer-by and the greater the likelihood that he will stop and look in and allow his imagination to oscillate between the possibilities of his purse and the seductions of the artfully arranged objects before him.

We come now to the other point to be considered in connection with the composition of a window, namely, the practical idea of displaying objects as wares, to the end both of selling them and adding to the general reputation and professional prestige of the druggist. It is perfectly possible to com-

bine the artistic idea of decoration with the practical idea of utility by the exercise of a little thought. At no time is this more feasible than at the present, when the approach of the holidays leads druggists to wish to exhibit the wares appropriate to the season in the manner most likely to lead to their sale. All sorts of elegant trifles, such as people buy for holiday gifts, lend themselves readily to the exigencies of decoration. Handsome cut-glass phials, cases of perfume, cosmetics, toilet-goods, may all be appropriately combined with more practical objects. A drug-store is not a bazar, but all goods bearing in any way upon the care of health, may legitimately be displayed with an eye to commercial interests. At the holiday season, the æsthetic side of the subject of physical well-being should come uppermost. The druggist should then bestow the same attention upon the arrangement of his windows that his neighbors do upon theirs. Only by so doing can he hope to rival with them and keep his business interests on a satisfactory footing.

An admirable design for a holiday arrangement of a druggist's window is to be found in an illustration at the head of this article, in which the artistic form is everything that is desirable, and the composition is such as to display the goods to the best practical advantage. This druggist has had the good taste to balance the jar at the right with a mass of palms at the left, instead of with another jar, as a person of inferior artistic instincts would certainly have done. The forms of the palms, again, are repeated in the large jar in the middle and the round object on the right. The numerous small articles, representing details of composition, are arranged in a most skilful manner. The whole impression of the window is that of richness, brilliancy, good taste, and the holiday magnificence proper to the season. From a distance, such a window as this would sparkle in the winter sun like a great jewel, and invite attention from far and near. The materials that compose it may be either of the richest or the humblest, but the effect they produce is that of a brilliant street-spectacle.



Another example of arrangement of holiday goods is seen in the illustration which has for its principal object a large clock of a tasteful character, made to simulate a trophy of armor. This is very modern and decorative, but at the same time so important a factor in the scheme of decorative composition as to require corresponding accessories. Small knick-knacks, pretty little perfume bottles, colored plush boxes, and similar pleasing trifles, jars of flowers and porcelain ornaments are not in harmony with the clock, being of too light and frivolous a character, as well as too small in bulk to act as satisfactory accessories. They are out of place among battle-axes and similar objects that form the clock. Decoration does not mean simply taking objects which are individually decorative, and throwing them together haphazard. It means bringing objects together in their proper relations of color, form, and other attributes. The first principle of art is selection, and this applies equally to ambitious easel art and to the minor industrial forms of decorative art. It is not necessary for a druggist, in order to make his windows popular at the holiday season, to lay in a supply of photographic accessories for decorative purposes, or to ruin himself in imitation antiques that nobody will buy of him. Let him choose pretty, tasteful goods for which there is always a market, and display them to the best advantage, observing the artistic unities carefully, adapting his scheme to the size and shape of his window, and above all things avoiding obtrusiveness which is as vulgar in the decoration of a shop window as in the dress of a woman. Obtrusiveness does not attract in the higher sense; it repels.

A druggist may, it is true, carry on his business as a dispenser of medicines without regard to the appearance of his windows, because so long as there are sick people in the world the drug business must flourish. But half the dealings of the modern American druggist lie with healthy people, in the full glow of animal spirits, and such people are not likely to enter an establishment the windows of which suggest the charnel house. As many persons go into a city drug-store in pursuit of the mild intoxication of soda water, in the course of a day, as go to have prescriptions put up for sick relatives. Toilet articles alone call into every drug-store a large amount of the custom that falls to its share. The more seductive the display of such goods in the windows, the greater is likely to be the demand for them in the store.

Suggestiveness is another element that should be considered in the decoration of windows, both artistically and practically. The druggist should, if possible, so contrive to arrange his decorative scheme as to suggest the different goods that he is able to supply to the public, at least in an elmentary fashion. The simplest scheme of decoration which combines in itself the goods the druggist has for sale in his store, so long as it is in correct taste, is far more valuable than a pretentious adornment that has no relation whatever with the calling of the druggist or the material that forms his stock-in-trade. Genuineness and sincerity are as important in the artistic decoration of drug-store windows as they are in every other form of art and life.

To distinguish Butterine.

THE following simple method has been suggested for approximately judging of the purity of a specimen of butter.

Melt the butter, and then cool it as rapidly as possible by means of some ice-cylinder put into it. Lard, which is a copious constituent of butterine, will sink to the bottom and any genuine butter present will rise, while there will be a distinctly visible zone or line of contact between the two.

[ORIGINAL COMMUNICATION.]

OIL OF CADE.*

BY ROBERT AMORY, M.D., OF BOSTON.

WHEN, a few years ago, it was suggested that oil of cade (*oleum cadinum; oleum cadi; huile de cade*) should be introduced in the U. S. Pharmacopœia, objection was offered that its composition was of too indefinite a character to have a proper place among official or officinal drugs; it was therefore not introduced into the sixth decennial revision. The chairman of the committee of revision, Dr. Charles Rice, of New York, has, however, taken a lively interest in endeavoring to discover the origin and mode of preparation of this drug, which has, within the last fifteen years, been so extensively employed by a certain class of medical practitioners.

Flückiger and Hanbury give the following brief account of oil of cade (in *Pharmacographia*, 2d ed., p. 623): "Oil of cade is a tar originally obtained by the destructive distillation of the wood of the cade, *Juniperus Oxycedrus* L., a shrub or a small tree, native of the countries bordering the Mediterranean. It was for centuries used in the south of France as an external remedy, chiefly for domestic animals, but had fallen into complete oblivion† until ten years ago, when it began to be prescribed in skin complaints. The oil of cade now in use is transparent and devoid of crystals, though somewhat thinner than Swedish tar; it closely resembles it in other respects. It is imported from the continent [into England], but where made and from what wood, we know not. *Huile de cade* is mentioned by Olivier de Serres, a celebrated French writer on agriculture of the 16th century: it is named by Parkinson, 1640; also by Tomet, in whose time (1694) it was rarely genuine, common tar being sold in its place."

While in Europe last winter, I received a request from Dr. Rice that I should personally examine the manufacture of the so-called oil of cade with a view of clearing up doubtful points which might be of use to our committee. And for this purpose he furnished me with a memorandum containing the salient points of what was known about the article up to that time, and of which the following is an abstract:

"Some years ago I was informed by one of the leading chemical manufacturers of Berlin, who had dealt in oil of cade for many years, that it had been chiefly in demand for the Russian market, until it began to be used by dermatologists, when its use gradually extended to other countries. I also learned that it was supplied to him by Sagnier et Fils, or by Vègre, Fiedler et Cie., of Nîmes, France. My informant wrote me that the article was said to be still prepared from the wood of *Juniperus Oxycedrus*, and that he had heard no complaints about its quality or uniformity ever since he could remember. I next directed my inquiries to the houses in Nîmes, from whom I obtained, through an obliging friend, the following information: Oil of cade is made in numerous localities over a large district extending from the department of Gard to that of Lozère and the Var—from the juniper with red berries (*le cade* or *le cadrier*), and not from *Juniperus communis* L., as has sometimes been supposed, and all, or most of the product, amounting annually to between 33,000 and 40,000 lbs., was sent to Nîmes and passed through their hands. The oil is made all the year round, in furnaces specially constructed for it. In these furnaces, which resemble potters' furnaces, the wood is piled up in small pieces, the furnace is

* Paper read before the Suffolk District Medical Society, Mass.

† This is not quite true, inasmuch as mention is made of it, as an external remedy, in various medical journals or works, for many years back, up to the time when Hebra advocated its use.

hermetically closed, and then heated during a fixed time. Finally the heat is withdrawn and the oil (tar) removed. I was also informed that there are some houses in Marseilles who *make* and sell "*huile de cade;*" but this is supposed to be factitious, being mixed with or entirely replaced by ordinary tar from pine. As the article is prepared in so many different localities over a large district, and by so many different persons, all of whom appear to work on a small scale, it is practically impossible to control the doings of each single producer, so as to ascertain whether he uses any other wood but that obtained from the *cadrier*. Yet the well-known conservatism and obstinate adherence to old customs among the country people of the continent, as well as the abundance of the new material, partially insure against wilful substitution, though custom may have sanctioned the latter in certain localities.

"Shortly after the drug was reintroduced into medical practice, I availed myself of the friendly services of a correspondent, and obtained a sample of the oil of cade sold by the Kaiserl.-Kõnigl. Hofapotheke in Vienna, which claimed to have the true, genuine article. This was sold at a very high price, but the sample which I received did not appear to differ in any respect from that which I had seen before or received from other sources. The experiments of the Vienna dermatologists, therefore, were probably all based on the usual commercial article.

"While corresponding on this subject with various persons abroad, I learned of the existence of an allied product in Transylvania, through Mathias Rosznyay in Arad, Hungary. This gentleman informed me that *Juniperus Oxycedrus* L. occurs in the Comitate Marmarosch, but that no tar was made from it in Hungary, and that all "oil of cade" used by Hungarian apothecaries was obtained from Paris. In Transylvania, however, about 4.000 or 5,000 kilos of a so-called oil of cade was annually made by Mr. Szavà Gerõ in Brassó, all of which was sold for exportation to some place unknown to the manufacturer. This oil of cade, however, is made from the young shoots of *Abies excelsa* DC (*Pinus Abies* L.) or *Larix Europœa* DC. (*Pinus Larix* L.), by distilling the dry wood in large iron retorts. At first, a volatile (afterwards solidifying), resinous substance is produced (so the correspondent states), which can be used with great advantage for tar-soap, since it does not render the latter softer in consistence, as is the case with similar products of different origin. Later on, the "oleum cadinum" passes over, and is caught in a separate receiver. [The correspondent speaks of it distinctly as obtained by distillation; in the case of oil of cade, the process is no doubt a "*destillatio per descensum*" such as is employed when common tar is obained.] As thus caught, it is still mixed with some resin and some liquid consisting of pyroligneous acid and allied substances, so that it separates, on standing, into several layers, the upper one a transparent yellowish liquid, the lower one a dark kind of tar. A sample accompanied the report."

Having thus obtained from Dr. Rice's notes sufficient information to direct my inquiry to definite persons and localities, I visited, during my sojourn at Nîmes, some of the large manufacturing druggists, among them Mr. Sagnier, who gave me in detail all one would care to know of the methods of manufacture. With this information he also furnished me with a specimen twig brought at his request by a peasant from Var, who sold him the cade oil. This twig was taken from the tree or shrub which yields the commercial oil of cade and was accompanied by a specimen of the oil. The process by which this is obtained is as follows:

The dry, not sappy, portions of the wood of *Juniperus Oxycedrus* L., as well as the roots, leaves, and twigs, are gathered at all seasons of the year by the peasants in the department of the Var, in the South of France, and chiefly among the hills and in the wild country. These are all cut up into small pieces, and carefully laid one upon another so as to facilitate free combustion, a fire is kindled, the whole is then covered up with earth so as to hermetically seal it from the air, and the products of the dry distillation *per descensum* rudely conveyed into wooden buckets or barrels. This product resembles thin tar, and is carried by the peasants on their own or their donkeys' backs down to the settlements, and generally into Nîmes or Toulon. The drug-merchants sell this tar, without purification, just as they receive it from the peasants. I could not personally visit the hill-country where this rude form of distillation is practised, because it was several days' journey on foot or on donkey's back; hence I am forced to give the information on hearsay. However, I saw the peasants who conducted the distillation and talked with them. Mr. Sagnier, Jr., informed me that during his boyhood, about thirty-five years ago, the peasants in the vicinity of Nîmes used to carry on this work, but latterly were obliged to leave it to others living more remote, because they had destroyed so many of the trees that it took too much time to collect the wood necessary for any large amount of distillation. Mr. Sagnier, the father, had seen many of these distilleries, and he described the process as being very simple and rude. Toulon is so much nearer to the place where these trees are now mostly found that the peasants traded most generally with that city at the present time. I brought with me to this country a small branch of the tree from which this distillation is conducted, and am informed by Dr. Rice that it is from *Juniperus Oxycedrus* L., but the specimen is now so dry that it would hardly bear transportation. There is reason to believe, however, that other allied species of *Juniperus* are sometimes utilized by the peasants, either by accident or design, for the same purpose; that the common savin (*Juniperus Sabina* L.) is, or at least has been, among these may be inferred from some specimens of the *cadrier* in the possession of Dr. Rice. The difference in shape and construction of leaves, etc., between the savin on the one hand, and the common juniper or the *Juniperus Oxycedrus* on the other, makes it highly improbable that the substitution is due to accident. Whether other species are also used, such as have been reported by various writers, *viz.: Juniperus phœnicea* L., *J. thurifera* L., etc. (the latter is said to be rare in Southern France, but more common in Spain and Portugal), could only be ascertained by a prolonged personal inquiry over the whole district where the product is made, and this does not appear to be of so great value as to justify the expenditure of so much time and money specially for this purpose.

There has been an apparent mystery regarding oil of cade, because it could only be directly purchased through Paris, Nîmes, Toulon, or Marseilles; its centre of commercial distribution being at Nîmes. Hebra's reintroduction of its use as a remedy in cutaneous diseases naturally led to its more general introduction into commerce all over the civilized world, and hence it can be found in the shops of most of the druggists in large cities. Yet there is no certainty as to its being a definite pharmaceutical article, the purity of which can be tested by physical or chemical means. Physicians, therefore, are apt to rely upon their individual experience as to the source from which they desire their patients to obtain their supply. The mystery, if any exists in regard to the distribution of oil of cade from Nîmes as a central depôt, is simply due to its historical relations. It was first used as a parasiticide in that city and its environs, in a wash for sheep who had the itch (*la gale*). It was found useful in the destruction of the sheep-tick and other parasites, and did not injure the sheep or their wool. Its empirical use in diseases of the human skin sprang from its success with sheep-skin diseases. Its medicinal use is not modern, since it is very clearly described as early as the first century, by Dioscorides (see Kühn's edition, I., 105). And it has frequently been employed or recommended before Hebra's time, in the treatment of skin diseases, as, for instance, by Larsen (*Hosp. Medelelser* III., No. 3), Giber (*Gaz. d. Hôp.*, 1857, 93. *Bull. de Thér.*, 1858, Aug.), H. van Holsbeck (*Presse Méd.*, 1857, 28), and others.

It is evidently a mixed, tarry product, and is received in this country probably exactly of the same character as that which is distilled by the French peasants who call it *huile de cade*, from their common name of the small tree from which it is derived, viz., the *Cedrier* or *Cadrier* in their dialect. I saw the trees growing near the Pont du Gard, which is about half-way between Avignon and Nîmes; the red berries had fallen from the tree to the ground and looked about the size of small cranberries, but of a lighter shade of red; they had thin skins, and were soft and pulpy. The peasants who lived near Pont du Gard described the process of distillation as being the same which was communicated to me by Mr. Sagnier of Nîmes.

The amount of oil of cade sold at Nîmes does not represent that which is manufactured, since there is a large amount locally used in the department of the Var for sheep-washing. The medicinal virtue of cade oil or tar may be different from that of other tars, but probably this matter is better known to dermatologists than to the general practitioners.

The price of this tar is very low, so that, as Mr. Sagnier said, there is probably no profit in making an unadulterated substitute. It costs at Nîmes from 1 to 2 francs the kilogramme, that is, about 10 to 20 cents a pound, which is but little encouragement towards making any tarry substitute for the crude nasty stuff originally sold by the Nîmes merchants for the purpose of destroying sheep vermin and skin diseases consequent to these or to some other parasitic origin.

Deposit of Native Saltpeter.

To the East of Cochabama, near the village of Arane, in Bolivia, there exists an immense deposit of saltpeter, which has the following composition, according to Sacc:

Nitrate of Potassium	60.7
Borax	30.7
Other Salts and Water	0.
Organic Matter	8.6
	100.0

Neutral Salicylate of Atropine.

SALICYLATE of atropine is considered to be the most effective and quickly acting of all atropine salts, provided it is pure and perfectly neutral. It may be prepared in the following manner: 23 parts of atropine are dissolved at a very gentle heat in pure alcohol, and enough salicylic acid (about 18 parts) gradually added until the solution is neutral, which is to be ascertained by repeated testing with litmus paper. The solution is now evaporated, on the water-bath, to a jelly, in which form it has an amber color. Finally it is completely dried in a drying oven. The resulting amorphous salt must be kept in securely stopped vials, since it is very deliquescent. If carefully kept, it keeps well; in solution, however, it is not very stable, since a copious formation of fungi occurs, usually in a few days. For this reason its solution should be prepared freshly when wanted.—*Pharm. Post.*

Pharmaceutical Stills and Vapor Condensers.*

ONE of the most desirable features essential to the further advancement of pharmacy, is that every pharmacist should at least make the most, if not all of his galenical preparations and many of his chemicals. Why this is now so seldom done, seems to depend upon the respective cost of production at our own laboratories and that of purchase from the various manufacturers. That the manufacturer, by large purchases, obtains a material reduction in the price of the raw material, there is no doubt, but that the difference in price between a few pounds and a bale or barrel is not near that of the relative cost of production and purchase is almost certain.

That the wholesale manufacturer's expenses are more than the pharmacist's, in proportion to the quantity produced, even admitting that the same care is exercised, and an equally reliable article made by them, is also without question. The liberal advertising done by the former to create a market for his goods, and the skilled labor employed by him must all be paid from the margin on his wares, as it is obvious that, no matter how large the quantity is, goods cannot be sold below the cost of production without loss, or below a certain limit if a standard of quality is to be observed.

The supply for crude drugs in limited quantities is facilitated, at the present day, to such an extent that there is little excuse for any pharmacist to buy his fluid or solid extracts, providing that he has the necessary apparatus for recovering the menstruum or solvent employed. With proper means for doing so, no more than ten per cent of alcohol ought to be lost in their manufacture, and with that loss alone we cannot understand why a pharmacist should not more than compete with the wholesale manufacturer.

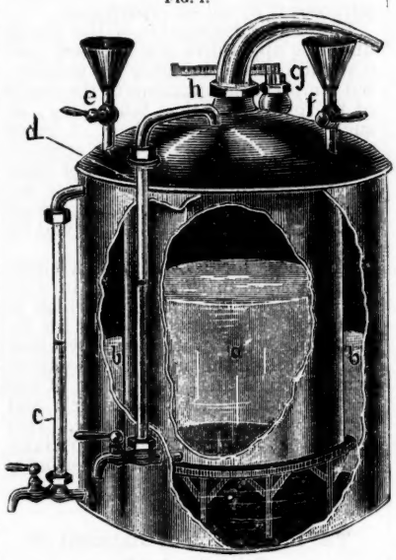
Take fluid extract of ergot, for instance, and employ the very best Spanish ergot, at a cost of about thirty-five cents per pound (which is probably not always done by wholesale manufacturers), and grind it in an ordinary drug-mill, which is or ought to be in every drug-store. The grinding, done at leisure hours by the available help, without extra expense, as well as passing through a suitable sieve, offers an advantage over the manufacturer. The menstruum of the reserve liquid, amounting to 85 per cent of the final result, and consisting of 3 parts of alcohol and 4 of water, would cost only about 14 cents, and the evaporated remainder contain no alcohol. If the residual ergot of the percolator is mixed with water and expressed, and the alcohol in the expressed liquid recovered by distillation, the loss of alcohol would certainly be very small, and not amount to more than 10 cents per pound at the utmost. If the amount for ergot be set down at 35 cents, alcohol in extract at 14, loss at 10, and gas or oil for heating at 10, the cost of a reliable article can be computed at 69 cents per pound. What my *confrères* pay for it in the market I need not state here.

That the precipitated, purified aqueous extract of ergot, usually sold under the name of ergotin, can be made by every pharmacist, with recovery of the alcohol employed, at less than one-half of the lowest wholesale price now asked, I could demonstrate equally as well. Most, if not all of the alcoholic and semi-alcoholic extracts can be prepared even in small quantities in the pharmaceutical laboratory with equal advantage and economy, as well as the new abstracts of the Pharmacopœia. The great desideratum which has always presented itself to me in the work of the laboratory, has been that of a proper distilling apparatus.

The recovery of volatile solvents is an easy matter in laboratories with steam supply and properly-jacketed stills and evaporating-pans; but without these, the alternative remains either to distil over the open fire, and thereby endanger the product, or by placing a small still in hot or boiling water, conduct the process in a tedious and imperfect manner.

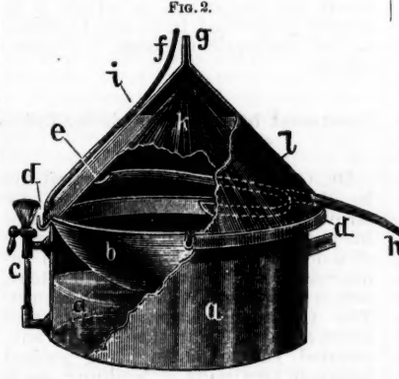
To overcome this defect, and at once to have a distilling apparatus for suitable productiveness, which admits of distillation with or without pressure, I had constructed of tinned copper and medium weight the apparatus I here exhibit, which was made after a design executed by one of my assistants, Mr. J. Robert Moechel.

FIG. 1.



It will be seen by the cut, showing both the interior and exterior, that it is of cylindrical shape, about two feet in height, that it consists of two cylinders, one inside of the other, and that both are attached to the convex top; the inner cylinder is mounted on a rest to prevent its weight from dragging down the common top. This inner cylinder contains the menstruum, *a*, to be distilled, or the alcohol to be recovered, which can be introduced at any time through the funnel, *f*. At-

FIG. 2.



tached to it from the top and reaching to its bottom is the gauge, *d*, through which the height of its contents, *a*, is seen. At the bottom of the gauge, and connected with it, is a faucet to draw the contents off at any time. The outer cylinder, which serves both as a joint steam and water bath, contains water, *b*, connected with the water-gauge, *c*, which indicates the volume contained in it; a faucet attached to the lower end of it serves to draw off the water as needed. Attached to the top of the outer cylinder is a steam-valve, *g*, by which, if lifted, the steam may escape without pressure, or if weighted, may be made to assume any desired pressure. The inner cylinder connects at *h*, by a screw-joint and gum-packing, with a bent pipe, which in turn can be attached to a large copper Liebig's condenser, such as I here exhibit, or instead, to one of Prof. Remington's condensors, if so desired.

This apparatus is especially useful for recovering the alcohol from dilute menstrua, and for concentrating alcohol largely diluted for purification, as well as for operating with solvents of larger volume, as in the manufacture of resin of podophyllum, berberine and hydrastine, apiol, etc. The solvent in these processes contained in the inner cylinder, and consisting of about five gallons of stronger alcohol, can be recovered in sufficient time to continue percolation with it, making the process almost continuous, and admitting of a twenty or thirty-gallon exhaust to be effected with only about five gallons of menstruum above that absorbed by the substance to be exhausted.

One of the disadvantages of this apparatus is the difficulty of cleansing it after concentrating the liquid to be distilled to a certain degree, and, therefore, the impossibility of conducting the evaporation to the degree desired. The heating necessary to drive over the vapors, which can only be accomplished at the boiling point of the solvent, is, in many cases, especially in aromatic extracts and those containing volatile oils or principles, a great disadvantage, while, if the evaporation is completed in some other flat vessel, considerable loss of solvent is experienced—which, if alcohol, ether, chloroform, or carbon bisulphide are employed—interferes greatly with the cost of the product.

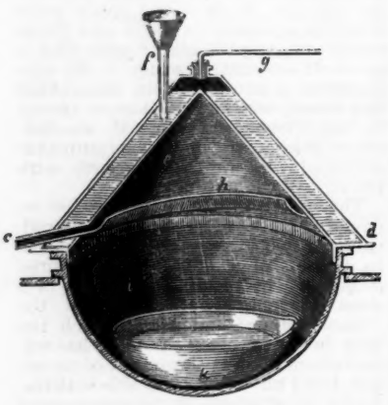
The most suitable apparatus for recovering all the solvent and one admitting of rapid evaporation without loss to dryness of a solid, or the desired density of the residual evaporate of a fluid extract, is undoubtedly the "Hood Vapor Condenser," which has been in use for some time. It has several claimants for the credit of its origin, but I have not been able satisfactorily to attribute it to any one of them. It is one of the most useful, if not the most useful solvent reclaimer of any in use in the pharmaceutical laboratory. Its principle of projecting hot vapor against a cooled slanting surface, from which the condensed liquid is recovered by a gully (or gutter), is certainly not new, but its application offers advantages even beyond that principle. The vapor condensing in the hood over the evaporating-dish, on being condensed, presents a vacuum which greatly facilitates evaporation and lowers the boiling point of the liquid in it. I had for some time employed the hood condenser, simply fitted loosely on the evaporating-dish, and with most excellent results in its operation, but found that with energetic ebullition the vapors would be forced out between dish and hood, occasioning, when ether, benzin, and carbon bisulphide were employed, dangerous explosions; while, in the evaporation of alcohol and chloroform, the loss sustained was considerable. This caused me to adjust it in a manner which I will demonstrate in the apparatus here exhibited.

To a water-bath, *a*, containing water, *a'*, fitted with a water-gauge *c*, and faucet to admit turning off to keep the steam, or by turning on to let steam escape, or to add water as needed, and having proper handles to facilitate its removal, is fitted a tinned copper evaporating dish, *b*, as tightly as possible to prevent the escape of steam at the sides. The evaporating dish has on its sides a groove, *d*, as a receptacle for a flange from the outside cone of the condensing hood. The hood itself is, like the rest of the apparatus, made

* By L. WOLFF, M.D., in *Amer. Jour. of Pharm.*

of light-weight tinned copper, and consists of two cones placed parallel within each other, about one inch apart. The two cones are closed squarely at the bottom, the outer, *l*, projecting and dipping down to form the flange for the water-joint to fit into the groove heretofore mentioned. Running from the top on the outside of the outer cone is a supply pipe, *f*, for cold water, which enters into the space between the two at the bottom of the outside ones. From the top of the outer cone extends a pipe of the same diameter as the former to admit the escape of the water at *g*. The water for cooling is conducted to *f* by a rubber tube from a hydrant or reservoir, and allowed to flow off by a tube again into a sink or receptacle, or, as I have often done when sufficiently cool, into another similar apparatus for further condensing purposes. When in operation, the vapors arising from the evaporating dish will be condensed on the inner surface of the cone, *k*, and by its slant will run into the gulley, *e*, which is in turn placed slanting into the cone to allow the flowing off of the condensed liquid through the tube *h*. The water-joint, *d*, may be filled with water, but better, according to the solvent to be recovered, with oil or glycerin, and it makes the closure absolute and air-tight, without either

Fig. 3.



the danger of escaping vapor and loss, or of explosion. The hood can easily be lifted to inspect the contents of the dish, or to replenish the same, if necessary, doing away with the screws, flanges, and packing usually employed. To admit of proper operation of the water-joint, however, care must be had to make the escape-pipe, *h*, of the proper diameter, and give it sufficient dip to cause the condensed liquid to flow off readily, for with a small tube, as I had at first, and horizontally placed, I now found that the filling of the pipe with liquid and the condensation of vapor in the hood caused a vacuum which rapidly sucked up the liquid from the water-joint. Care must also be observed that the apparatus should be perfectly level; the liquid in the water-joint will give the best indication for that purpose.

An apparatus, such as I have exhibited, will answer all the purposes pointed out, both as an evaporator and a still. The heat necessary for its operation may be had either from a gas-stove, or, where gas is not at hand, and even with greater economy, by a coal-oil stove, or it may readily be operated by placing it on the top of an ordinary kitchen range or stove. There is absolutely no danger from explosion, and the recovered liquid, if highly inflammable, may be led away by a proper tube from any dangerous proximity of the flames. The fact that the evaporating dish is made of copper will not interfere with the evaporation of acid liquids, as these can be placed in porcelain dishes inside of it without interfering with the results.

The advantages of this apparatus are its simplicity and small expense, the rapidity with which evaporation is effected by it, its adaptability to any scale, the fact that in it evaporation may be conducted to the very end, and the ease with which residua may be removed and the apparatus itself be cleaned. Its work as a still is fully equal and greater than an ordinary one of its size, while it is perhaps the only apparatus by which vapor can be condensed at a comparatively low temperature and without boiling of the contents. For the manufacture of the fluid and solid extracts, oleoresins, abstracts, etc., on a small scale, I certainly know of no more suitable apparatus and one more adapted to the wants of the pharmacist. It might still further be improved by the addition of a suitable thermometer, inserted through a cork in a proper opening in the hood, but I think for ordinary purposes it would be superfluous.

I offer the description of the above distilling apparatus, not with any special claim for originality or novelty, but simply as adaptations to the needs of the pharmaceutical laboratory; as such as I have found them of great practical value, and if their employment aid to the desirable end of placing the pharmacist in his proper domain as a producer rather than a small dealer, the object of this paper will be fully attained.

[Another form of hood-condenser was described in this journal in January, 1877, an illustration of which is in Fig. 3. The funnel *f* serves for introducing cold water; the overflow being through the pipe *g*. The vapors condensed against the inside of the hood are collected by the gutter *h*, and escape by the discharge-pipe *c*. This form of apparatus is especially adapted to be used with a water-bath. —Ed. Am. Drug.]

The Preparation of Ointment of Salicylic Acid.

Balmanno Squire says that ointments made by *dissolving* their ingredients in *hot* lard are far more efficacious than when they are merely *mixed* with *cold* lard. In the case of chrysophanic ointment as well as salicylic ointment, the ointment should also be well mixed with a mortar and pestle during the process of cooling. Experiments have determined that at the temperature of the water-bath, hot lard will take up thirty grains of salicylic acid to the ounce, which is about the proportion in which it is usually prescribed in cases of eczema or for antiseptic dressing. — *Pharm. Journ.*

Treatment of Tuberculosis by Iodoform Inhalation.

Dr. Guocchi, on the theory that the bacillus of tuberculosis can be destroyed by certain substances, causes his phthisical patients to inhale vapor of iodoform from a bottle with an India-rubber tube furnished with a teat, which the patient holds in his mouth. The treatment is repeated several times a day. Cigarettes may be substituted, the iodoform being packed between two pads of wadding, as is done in camphor cigarettes. Dr. Guocchi uses the following liquor, with which he declares he has obtained remarkable results in a great number of cases:

	Grammes	
Iodoform, powdered	1.50	[24 grains]
Oil of Turpentine	.50	[10 min.]
Nut oil	150 to 200	[5 to 7 fl. oz.]
Oil of Bergamot	2.40	[40 min.]
Thymol	2.40	[40 min.]

—*Un. Méd.* and *Chem. and Drugg.*

[Original Communication]

MEXICAN SANDAL WOOD BARK.

BY H. STIEREN, M.D.

In Mexico and some of the Central American Republics, where it is indigenous, there is used, no doubt from reasons of economy, for fumigating purposes in churches, in the place of frankincense, the bark of a tree, particulars of which I have been unable to obtain, but which I am strongly inclined to consider as some species of Myroxylon or Myrospermum, leguminous plants.

This bark occurs in irregular, more or less smooth or unevenly corrugated pieces, of a light whitish cinnamon color with dark, hard epidermis, and of an agreeable, custard-like smell, and aromatic, slightly acrid, balsamic bitterish taste. A small quantity, coarsely powdered and sprinkled over burning coals, emitted a balsamic, mixed aromatic odor, devoid of the pungency of burned frankincense.

A thin cross-section manifested, at about 75 diam. linear, in the microscope, oil cells interstriated with apparently semi-viscid, resinous matter.

Nine hundred and sixty grains of the bruised bark, including about one-sixth its weight of the dark-colored epidermis, were exhausted with alcohol, and yielded, after removal of most of the alcohol by slow distillation on the water-bath and final spontaneous evaporation to syrup-consistence, 9.5 grammes, equal to 146.5 grains, or about 15.25 per-cent of a clear, rich brown, sweet-scented balsam-like substance, not dissimilar to Peruvian balsam in appearance. In the process of final condensation of the alcoholic extract, something like an ethereal oil partly separated to the surface in oily drops, but afterwards reunited with the denser parts.

A sample of this alcoholic extract yielded, with potassium hydrate, crystalline, quadrangular tablets of a yellowish color and of the flavor of coumarin, which, distilled with water and a little alcohol, gave a milky product of insipi , indifferent taste and smell, while the residue reassumed, after a few days' standing in the retort, the previous coumarin odor, indicating no essential change by distillation. This residue, treated with sulphuric acid to slight acidity, yielded a viscid, brown mass, of the exact smell of storax, while the liquid, which deposited a slight amount of cinnamic acid, was of cinnamon odor. The alcoholic extract is soluble in caustic alkali.

A small amount of the bruised bark was distilled with water, when a slightly milky distillate was obtained, of faint cinnamon smell, with a very slight oily surface, the phlegma being of a muddy brown color.

Another quantity of the bruised bark was macerated for a few days with water, with the addition of a small quantity of caustic potash to slightly alkaline reaction, the result, after expression and filtration, being a yellowish-brown liquid of same flavor as the bark. Sulphuric acid caused in the liquid a whitish turbidity with subsequent yellowish, crystalline precipitate; with hydrochloric acid also a whitish turbidity with subsequent brownish crystalline precipitate; both liquids, after addition of the acids, separating also on the walls of the precipitating vessels resinous matter as a flocculent, brownish mass. The yellowish, as well as brownish precipitates mentioned, proved to be cinnamic acid, more or less contaminated with precipitated resinous matter.

Continued experiments proved that the odorous principles rest in an oily substance, cinnamic acid and its combinations, and resinous matter. Benzoic acid, as a proximate principle, could not be identified, neither is there an alkaloid present in the bark. The

peculiar action of potassic hydrate on the alcoholic extract, producing the exact coumarin flavor, deserves continued attention, which I shall give it in due time.

Although, as a rule, not comparable to frankincense, which is a pure resin, and of a pronounced, strong and penetrating smell upon ignition, this bark, from its milder, but more aromatic odor, may be considered a good substitute for fumigation in churches, and the oleo balsamic constituent, being contained in the bark to the extent of 15%, will, no doubt, be found adaptable to many uses, and may eventually replace Peruvian balsam, than which it is much finer and more delicate.

DETROIT, MICH., 1884.

[ORIGINAL COMMUNICATION.]

EXAMINATION OF JEFFERSONIA DIPHYLLA [OR TWIN-LEAF] FOR BERBERINE.

BY ANSON W. FLEXER.

FIVE pounds of selected root of *Jeffersonia diphylla*, reduced to a moderately coarse powder, were thoroughly moistened with officinal alcohol, packed firmly in a carefully-prepared percolator, and after pouring on two gallons of officinal alcohol, allowed to stand and macerate for twenty-four hours. At the expiration of this time, percolation was commenced and continued until one and a half gallons of percolate had passed, when the operation was discontinued. Two gallons of officinal alcohol, acidulated with four fluid ounces of acetic acid, were then added, and maceration continued for twenty-four hours. At the expiration of this time, percolation was resumed, and all the menstruum allowed to pass. The last portions of the percolate proved to be tasteless and nearly colorless. After mixing the first percolate with the last, the mixture was brought to the measurement of four gallons by addition of officinal alcohol, in order to facilitate future calculations. The percolate was of a light brown color.

The dregs, after having been exposed in a drying-room to a temperature of 110° Fahr. for forty-eight hours, weighed four pounds and twelve ounces, showing a loss of four ounces.

To sixteen fluid ounces of the percolate (representing two and a half ounces of the drug) an excess of sulphuric acid was added and the mixture placed in a situation where the temperature remained below 50° Fahr. In like manner, sixteen fluid ounces, acidulated with hydrochloric acid, were set aside for twenty-four hours. In both solutions a light-brown precipitate formed, but neither of the precipitates nor the supernatant liquids showed any of the characteristics of berberine.

Thirty-two fluid ounces of the percolate, representing five ounces of the drug, were now placed in a glass retort, and the alcohol distilled until the liquid was of a syrupy consistence, It was placed in an evaporating dish, eight fluid ounces of water added, and the mixture evaporated on a steam-bath until all traces of alcohol had disappeared. The remainder was brought to the measurement of sixteen fluid ounces by the addition of water, and set aside for twenty-four hours, at the end of which time the fatty and resinous matter had separated. The contents of the dish were now filtered, and the precipitate in the dish washed successively with small portions of water, and the washings passed through the filter.

Eight fluid ounces of this filtrate were placed in a bottle, and after acidulation with sulphuric acid, the mixture was placed in a cool situation, in order to allow it to precipitate. In like manner, another portion was acidulated with hydrochloric acid and set aside. In both bottles slight precipitates formed, each having the color and appearance of the precipitate obtained from the aforesaid alcoholic solution, but entirely different from a a berberine salt.

The usual processes for separation of berberine having thus failed, a scheme was next followed which is employed by Prof. J. U. Lloyd in determining berberine under certain circumstances, and which is based upon the insolubility of picrate of berberine in water in the presence of dilute ammonia. This proved to be most delicate where traces of berberine were added to the original solution, and it demonstrated the absence of berberine in the root employed in the investigation, as follows:

Two hundred and twenty four fluid ounces of the percolate, representing thirty-five ounces of the drug, were subjected to distillation until one-hundred and ninety-two fluid ounces of alcohol had passed over. The liquid remaining in the retort was now placed in a capacious evaporating dish, and, after adding water, was evaporated on a water-bath until all traces of alcohol had disappeared. After standing twenty-four hours, to allow fatty and resinous matter to separate from the solution, it was filtered, and the filtrate brought to the measurement of twenty-four fluid ounces by the addition of water. The resinous matter was of a brownish-black appearance and the filtrate of a dark brown.

To six fluid-ounces of this filtrate, representing eight and three-fourths ounces of the drug, a solution of picrate of ammonium was added. A precipitate gradually formed, which, after standing twenty-four hours, was collected on a filter and the following tests applied for berberine.

A small portion was agitated with water and a few drops of ammonia added, when it readily dissolved. Another portion was shaken with officinal ammonia water, wherein it readily dissolved. Picrate of berberine being practically insoluble in cold water of ammonia (Lloyd), the test proves that the precipitate was not picrate of berberine.

A small portion of the original twenty-four fluid ounces of filtrate was now taken, and, after rendering it alkaline with water of ammonia, a solution of picrate of ammonium was added and no precipitate resulted. On the addition of a small portion of a very dilute solution of sulphate of berberine, a precipitate resulted at once, thus proving that had berberine been present in the original solution, it would have been precipitated according to the process described, previous to the addition of sulphate of berberine.

As the last tests proved to be most delicate where traces of berberine were added to the original solution, we can safely say that the specimen of *Jeffersonia diphylla* examined by me did not contain berberine.*

Pilocarpine in Diabetes.

A NEW use has been found for pilocarpine, by Dr. T. C. Eager, in the treatment of diabetes. In the *Lancet* (August 16th, p. 275) he describes a case which was cured by the use of pilocarpine and pepsin, with appropriate dietetic treatment.

* A thesis presented to the Cincinnati College of Pharmacy, session of 1883-1884.

These investigations were carried on in the laboratory of Prof. J. U. Lloyd, and with authentic specimens which were furnished by him. The writer takes this opportunity to extend his thanks for the favor.

* [The above is of interest because the drug (commonly known as *Ground-squirrel Pea*, *Rheumatism Root* or *Twin-Leaf*) is reported to contain a small amount of berberine. It is officinal among eclectic practitioners and may be found described in King's *American Dispensatory*, ed. of 1876, p. 159, and more briefly in the *U. S. Dispensatory*, ed. of 1883, p. 1,677, and the *National Dispensatory* of 1884, p. 818.—ED. AM. DRUG.]

A CHEAP VOLTAIC BATTERY.

THE *Electrician and Electrical Engineer* gives the following directions for making a battery which will serve for amateur telegraphy and a variety of purposes in which a galvanic current is useful, and where an expensive apparatus is not available. Take a number of glass bottles—say 2½ inches in diameter and 4½ inches high to the shoulder, and take off the bottom, either with the aid of a glazier's diamond, or by putting a small quantity of water into a saucer or similar vessel with a little turpentine or other inflammable liquid upon its surface. Stand the bottle in this vessel and light the turpentine, and the expansion of the glass will cause the bottle to break squarely off at the level of the water.

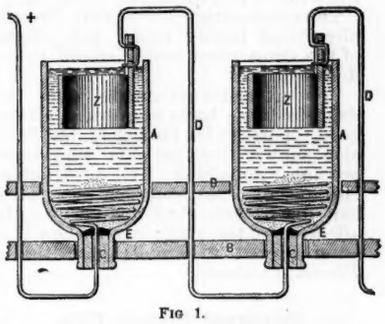


FIG 1.

Any required number of bottles, so prepared, may be arranged in inverted position, in a wooden rack (BB) formed of thin boards, the upper board having holes that will embrace the bottles above the shoulders, and the lower line of boards having holes that will allow the necks only of the bottles to pass. A cork C is to be inserted in the neck of each bottle, and through it is to pass a copper wire (D) terminating in a spiral of three or four turns, as shown at *d*. The whole should be made water-tight with sealing-wax or other cement at E. The wire D from each bottle is to be bent and poised through gimlet holes, as shown in Fig. 1. For the size of cells mentioned wire of American gauge 10, three feet in length, will answer for each cell.

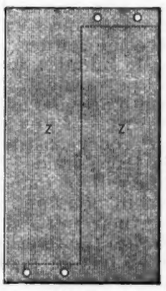


FIG. 2.

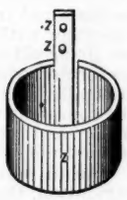


FIG. 3.

The zinc elements may be formed from rolled zinc about $\frac{1}{16}$ inch thick which should first be cut into rectangular pieces 4×6½ inches, and these again divided, as shown by the dotted line in Fig. 2. This will form two battery-plates without waste. These are then to be bent (with the aid of heat) into cylindrical form, as shown in Fig. 3, two holes having previously been drilled or punched, as shown at *zz*, Fig. 3. Through these holes the other end of the copper wire is to be threaded and secured by hammering, or, if convenient, by solder. The zinc should not be amalgamated.

The battery is set in action by filling the cells with soft water, preferably rain-water, after which a teaspoonful of pulverized sulphate of copper is to be dropped upon, and around the copper spiral at the bottom of each cell. The action may be hastened, if required, by the addition of a table-spoonful of sulphate of zinc to each cell.

Administration of Antipyrin.

B. REBER, of Geneva, recommends the administration of this new drug in combination with syrup of orange flowers, or syrup of raspberries, in the proportion of about thirty Gm. of either syrup for two to three Gm. of antipyrin (or about one fl. oz. for every thirty to forty-five grains). Other good vehicles are simple syrup flavored with essence of lemon, melissa, or peppermint. [Probably still better will be simple elixir or the compound elixir of taraxacum of the N. Y. and Brooklyn Formulary. — ED. A. D.] The best vehicle, according to the author, is wine, in which the drug should be dissolved immediately before it is administered, since the antipyrin causes the coloring matter of the wine to precipitate on standing.

The same author states that French physicians highly praise the effects of the drug when administered hypodermically.

The experiments made with the drug in Paris have confirmed all the good reports so far published, but have also shown that patients who have become enfeebled by protracted, chronic diseases (tuberculosis, purulent discharges, etc.) are very easily affected by the drug, even when it is administered in small quantities.—*Pharm. Centralb.*

Improved Blaud's Pills.

THE suggestion of Kirchmann (see AM. DRUG., November, p. 207), of using a little borax for improving the pill-mass of copaiba, has induced C. Deupser to try the same salt in Blaud's pills, and the result was highly satisfactory. The author gives the following directions:

	Gm.	Grains.
Sulphate of iron (ferrous)	15.0	240
Carbonate of potassium	15.0	240
Mucilage	8.0	128
Sodium borate	0.1	1½ (to 2)
Althæa root, powd.	1.5	24
Tragacanth, powd.	0.5	8
Glycerin	a few drops.	

Reduce the sulphate of iron and the carbonate of potassium, each separately, to a fine powder, mix them, add the mucilage, and triturate that a sticky green mass is formed. Next add the borax and mix thoroughly. During the trituration the mass will be distinctly felt to become harder, and and after standing 15 minutes, it will have become almost pulverulent. The althæa and tragacanth are now added, together with a few drops of glycerin, so that a pill-mass of proper consistence is formed which is to be divided into 100 pills. The latter will be found to be comparatively small, of a fine green color, and retaining their softness for some time.—*Rundschau* (Leitmeritz).

[As an addional protection against oxidation, they should be coated with tolu, according to the directions of the U. S. Ph. for Pilulæ Ferri Iodidi. Another formula for Blaud's Pills will be found in the August number of this Journal, p. 149.—ED. A. D.]

Medicated Kaolin and Other Pastes.

PROF. UNNA, to avoid the greasiness and reduce the cost of ointments, has suggested the use of kaolin, or porcelain clay, as a basis. The paste should be quickly and easily spread in a thin layer on the skin, and should form in a short time a firmly adhering coating.

Pure kaolin, with vaseline or glycerin in equal parts; with oils, such as olive, almond, or linseed, in the proportion of two to one, will produce a good paste. With more linseed oil, a liniment is produced. This, when spread on extensive surfaces, leaves a quickly-drying residuum. When other ingredients, such as lead acetate of zinc oxide, are used, the kaolin and oil or glycerin are to be mixed first, and the lead or zinc added, as the kaolin is otherwise apt to form an insoluable cement with the metallic salt. Yellow or red kaolin may be used in place of white, and these pastes may not only be used in the treatment of certain diseases of the skin, but also as vehicles for escharotic agents.

The following formula is suggested:

Pure Kaolin,
Linseed Oil (or glycerin), of each.....30 parts.
Oxide of Zinc,
Solut. of Subacetate of Lead, of each....20 "

—*Edinb. Med. Journ.* from *Monat. f. Prak. Derm.*

Prof. Unna, in his experiments with kaolin pastes, found that other forms of paste might be used to advantage, as for example:

Lead pastes.—Boil a quantity of litharge with double the quantity of vinegar, until the latter has evaporated and the litharge has become a moderately damp mass. Should the paste in time become dry, it can be restored by heating it with more vinegar, or:

Lithargyri subt. pulv. parts 50
Aceti..... " 80

Boil to the consistency of a paste and add

Ol. Lini (*vel* glycerini, *vel* Ol. Olivæ).....parts 10

Starch Pastes.—Useful in eczema. In this case, the property of drying must be imparted to the paste by the addition of oxide of zinc, sulphur, etc.

Zinci Oxidi.....parts 50
Acid. Salicylici..... " 2
Amyli Oryzæ..... " 15
Glycerini..... " 15
Aq. destillat..... " 75

Mix simultaneously, and heat until reduced to 140 parts.

A similar paste for acne consists of:

Sulphuris præcip.....parts 40
Calcii Carbonat..... " 2
Zinci Oxidi..... " 20
Amyli Oryzæ..... " 15
Glycerini..... " 20
Aq. destillat..... " 75

M. Reduce by boiling to 120 parts.

Dextrin Pastes.—(For eczema.)

Zinci Oxidi.....parts 40
Dextrini (pulverized),
Aq. destillat.....aa. " 20
Glycerini..... " 40
Sulphuris sublim..... " 2

M. Boil to a paste.

For freckles:

Zinci Oxidi.....parts 10.
Bismuthi Oxychloridi, " 2.
Hydrarg. Perchloridi, " .02–0.5
Dextrini,
Aq. destill.....aa. " 10.
Glycerini..... " 15.

M. Boil to a paste. If it becomes hard, a few drops of water will enable it to be spread.

Gum pastes (for chronic infantile eczema).

Zinci Oxidi.....parts 40
Hydr. Oxidi Rubri.... " 2
Mucilag. Acaciæ,
Glycerini.....aa. " 20

M. secundum artem.

Cretæ Præparat.,
Sulphuris Sublim..aa. parts 2
Picis Liquidæ..... " 8
Amyli..... " 20
Mucilag. Acaciæ,
Glycerini.....aa. " 15

M.

For scabies:

Zinci Oxidi.....parts 40
Bals. Peruv..... " 20
Mucilag. Acaciæ,
Glycerini.....aa. " 30

M.

For sore nipples:

Sacchari Albi,
Zinci Oxidi,
Mucilag. Acaciæ,
Glycerini.....aa. parts 5

M.

The gum pastes will serve also as vehicles for chrysarobin and pyrogallic acid and oily substances, but cannot be employed for acids, since these destroy their adhesiveness. Kaolin paste can also be used for chrysarobin and pyrogallic acids.

Attempts to form pastes which can be kept in bulk ready prepared have thus far been unsuccessful. Even oil, or glycerin, fail to prevent their hardening in time, and as the best pastes are those which dry the most rapidly when applied to the skin, these are the ones which are soonest spoiled by keeping. Corrosive sublimate, calomel, red and white precipitate, naphthol, carbolic acid, chloral hydrate, and camphor may be combined with any of the above formulæ. Salicylic acid mixes well with all the pastes, excepting in large proportions with gum paste. Iodine and iodoform are compatible with the lead, kaolin, and gum pastes, but not with the others. Animal, vegetable, and mineral fats and soaps can be mixed in small quantities with all the pastes.—*Edinb. Med. Jour.*

Wax-Pencils for Colored Writing upon Tin, Wood, etc.

1. *Red.*

Carnauba wax.....20 parts.
Ceresin, natural.....40 "
Japan Wax.....40 "
Cinnabar.....15 to 25 "

Note: The first three ingredients must previously be boiled with water until they cease to yield anything to the latter.

2. *Carmine.*

Carnauba wax, white, best 20 parts.
Japan wax, white, best...15 "
White wax, best.....15 "
Carmine.....25 "
Cinnabar (imitation).....25 "

3. *Red.*

Carnauba wax, white.....30 parts.
Japan wax, white.....25 "
White wax.....25 "
Cinnabar, Chinese (gen.)..20 "

4. *Blue.*

Carnauba wax.....25 parts.
Ceresin, natural.....25 "
Prussian Blue.....50 "

Unna's Formula for Cold Cream.

DR. UNNA, of Hamburg, the well-known dermatologist, has made a comparative study of the various formulæ proposed in different old and new pharmacopœias and formularies for cold cream and has come to the conclusion that, so far as appearance, consistence, cooling effect, etc., were concerned, the following formula is the most suitable for dermatological purposes:

Rose-water.....10 parts
Expressed Oil of Almonds.....10 "
White Wax..... 1 part
Spermaceti..... 1 "

Misce sec. art.—After *Pharm. Centralbl.*

Jamaica Ginger.

THE cultivation of ginger upon Jamaica has been greatly diminished. According to the report of Mr. Morris, only 7,036 cwt. (value of £16,000) were exported during the last five years, against 11,219 cwt. (value, £22,000), in the previous five years. The cause is to be ascribed partly to the exhaustion of the soil by rapacious planters, and partly to improper methods of planting.—*Pharm. Zeit.*

Persian Opium.

U. S. CONSUL-GENERAL BENJAMIN, at Teheran, Persia, makes the following report to the Department of State:

I have the honor to report that several letters have been addressed to this consulate-general for the purpose of obtaining information regarding the character and price of Persian opium. I beg, therefore, to submit a few observations on the subject, which may be of value to our importers.

Some years ago, the production of opium in Persia was larger than at present. The unusual amount of morphia which Persian opium contains made it justly preferable to that produced elsewhere, and large quantities found their way to foreign markets, and especially to China.

Two causes have latterly tended to check the culture and export of Persian opium, although the trade in the article is still important. One of these causes alone might not have led to such a result, but the two coming about the same time have somewhat discouraged the production of Persian opium. These causes were the increasing adulteration of the article, and the fact that the attention given to its culture materially reduced the more important culture of wheat, which led the government to regard the opium product with disfavor.

Persian opium is chiefly grown in the provinces of Kermanshâh and Ispahân. The latter city is the centre of opium trade of Persia. The opium of Ispahan is the best; the highest grade has been found to contain fifteen to sixteen per cent of morphia. It is fair to state, however, that of late the opiums of Kûm, Teherân, and Nezd have been growing in favor, some specialists considering the quality raised at Kûm as surpassing every other grade of opium. As the highest quality of Smyrna opium does not contain a mean of over 13.57 per cent of morphia, some analyses placing it even lower, while the Persian drug yields at its best thirteen to sixteen per cent of morphia, hard, it certainly rivals that of Symrna, and is beyond question far superior to that of Egypt and India.

The chief objection to the opium of Persia lies in the adulteration to which it is subjected, the chief ingredient in this deterioration being grape must, and sometimes small stones concealed in the parcels. This difficulty could be remedied by any enterprising house which, through honest, capable agents, could purchase the entire product of Persia, or of any one of the opium producing districts, and give direct attention to the preparation and packing of the drug. A pure article could also be obtained by a firm ready to form a contract for a certain quantity of a given grade of the drug for a term of years, the continuance of the contract depending on the non-varying proportion of morphia in the exported article.

The average price of the opium of Persia, in its crude state, is now $4.77 per kilogramme. To 72 kilogrammes of opium are added 6 kilogrammes of linseed oil. The mixture is then subjected to a manipulation which reduces the 77 to 66 kilogrammes. These 66 kilogrammes are divided into 100 balls, forming a Persian package. A specified number of the balls of opium make a case. The cost of packing, freight, and other incidental expenses bring the average price of a case of Persian opium, such as is prepared for export, up to $366.66. The excise duties vary at different centres of the trade, but five per cent ad valorem is the uniform rate according to the treaty of Turkomantchai on all goods exported to Europe or America, and I may add, on all goods imported from those countries into Persia.

It is stated that 2,000 cases of opium, valued at $732,000, are now exported from Bushire to England, besides what finds its way to China and other quarters, from the other districts of Persia. There is no doubt that if sufficient encouragement were offered, especially by the establishment of agencies at Ispahân or Teheran, or by making permanent contracts, the product could easily be increased and the purity of the exported articles improved. Indeed the opium merchants of Ispahân have already made overtures for the American trade, and are prepared to make contracts for a term of years.

It is proper to state inquiries made of practising physicians at Teherân, including an American physician, elicit the highest opinions in favor of the opium of Persia as regards the character, and quantity of morphia it produces when unadulterated.

Note on the Filtration of Lard.*

THE author stated last year, as the result of certain experiments, that washing and straining, or washing and filtering, were without advantage in the preparation of lard for use as an ointment basis, and further, that filtration, *per se*, possessed no advantage in practice. In reply to this, Mr. Conroy said "he found that, by filtration, he got a most excellent product, which would keep good and sweet. He did not consider washing to be of much use, but careful filtration was necessary to separate decomposable matter." Prof. Redwood subsequently expressed the opinion that "complete separation of all suspended matter is obviously important, and, therefore, filtration seemed desirable where practicable." At the Exeter Meeting in 1869, Mr. Edward Smith said: "I cannot too strongly insist that, if lard be required of first quality, it is absolutely essential that it should be filtered through paper . . . the germ of success lies in filtration . . . to strain is to invite inferiority, to filter is to secure superiority, if not perfection."

Table showing generally the effect as regards rancidity in the two most rapidly decomposable ointments when prepared respectively with strained and filtered lards.

Ung. Summer Temp. 65°-80° F.	Lard strained through tow, flannel, or linen.	Lard filtered through paper.	Lard washed and strained through flannel.
Ung. plumb. carb., 4th week.	Changing	Changing	Changing.
Ung. plumb. carb., 5th week.	Rancid	Rancid	Rancid.
Ung. hyd. n. ox., 4th week.	Good	6 Changing	Changing.
Ung. hyd. n. ox., 5th week.	Good	5 Changing	Slightly rancid.
Ung. hyd. n. ox., 6th week.	Slightly rancid.	Rancid	Rancid.

Mr. Willmott has, therefore, made some more experiments. He took perfectly fresh leaf lard, melted it, and strained it through fine tow, flannel, and fine linen, and filtered it through paper. A portion of each of these strained specimens was allowed to pass into a test-tube, and all being subsequently melted at the same temperature, the difference in clearness and uniformity of condition, when examined by transmitted light, was practically nil. The specimens were then used in the readily-changing ointments.

* Abstract of paper read before the Brit Pharm. Conf. by W. WILLMOTT.—After *Chem. and Drug.*

A third ointment (ung. pot. iod., and zinc. carb.) soon became discolored, the difference being distinctly to the disadvantage of the specimens prepared, respectively, with the washed and filtered lards.

This general statement, the author thinks, shows that, so far from the filtration of lard possessing any advantages in practice, the operation is one which will be found to be "more honored in the breach than the performance." He regards his former experiments as clearly corroborated, and considers that the most desirable method for adoption in preparing lard for use in pharmacy is one corresponding to that suggested by Prof. Redwood, or one assimilating, with some slight modifications, to the process of the British Pharmacopœia of 1864. These processes exclude both washing and filtration.

The Recognition of Adulterated Essential Oils.

H. W. LANGBECK proposes a novel method for ascertaining, within certain limits, the purity or identity of essential oils. This method is based upon the varying degree of solubility of *salicylic acid* in the oils. It was found that this was much more soluble in such oils as contain oxygen than in those free from it. For instance, the oils from Labiatæ dissolve a great deal of the acid, those from Umbelliferæ mostly a smaller quantity, and those from Coniferæ, Cassieæ, or Dipterocarpeæ only very small quantities. The following rates of solubility are given by the author, for one part of salicylic acid:

Oil of Anise, freshly rectif.	74.7
do. with 5% Oil Turpentine	94
do. with 10% Oil Turpentine	116
do. pure, 1½ years old	70
do. do. do. with 5% Oil Turpentine with 10% Oil Turpentine	81 100.6
Oil Bergamot, fresh	30
do. with 5% Oil Turpentine	36
do. with 10% Oil Turpentine	42
do., 1 year old	17
do. do. with 5% Oil Turpentine	22.5
do. do. with 10% O. T.	36
Oil Cajuput, 1 year old	10
Oil Caraway, 1 year old	8.5
Oil Cloves, fresh	56
do. with 5% Oil Turpentine	68
Oil Cassia, 1 year old	7.7
Oil Lemon, ½ year old	80
do. with 5% Oil Turpentine.	104
do. do. 10% Oil Turpentine	125
Oil Eucalyptus, 1 year old	13
Oil Fennel, 1 year old	31
Oil Juniperwood, 1 year old	130
Oil Lavender, fresh	12
Oil Melissa, 1 year old	13
Oil Curled Mint, 2 years old	10
Oil Peppermint, Hotchkiss, 1 year old	7
Oil Peppermint, with 5% Oil Turpentine	14.6
Oil Peppermint, with 10% Oil Turpentine	26
Oil Rosemary, fresh.	12.5
do. with 5% Oil Turpentine	17.65
do. with 10% Oil Turpentine	24
Oil Thyme, fresh	55
Oil Mustard, fresh	58
Oil Valerian, 3 years old	15
Oil Turpentine, fresh	625
do. ½ year old	540

Though in many cases no practical or useful conclusion can be drawn from these figures, yet in some cases it will be possible to distinguish a genuine oil from one that is adulturated.—After *Pharm. Post.*

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EDITORIAL.

IN looking back over the issues of our Journal during the past year, we may be permitted to feel a little pride over the large measure of success which has attended our efforts to cater to the wants of our critical patrons. Our aim has been to lay before our readers the very best, most reliable, and newest information on subjects relating to the scientific branches, as well as to the commercial and trade interests of the profession.

The new departure inaugurated with the commencement of this volume, of adding a column of reading matter to the outside or advertisement pages, has enabled us to separate papers and articles of permanent value from those of a more ephemeral character, and the wisdom of this step has by this time been fully appreciated by our readers and patrons.

In providing the best reading matter and the most reliable information for our public, neither time, labor, nor expense is spared either by the publishers or the editors.

Among the most trying and difficult tasks devolving upon the editors are the replies to inquiries of our correspondents. These often involve more or less protracted experiments, search through literature, or correspondence with various persons; but as we enjoy special facilities in all these directions, we have been able to fully satisfy all our inquirers, and to meet their approval.

While our Journal devotes a considerable space to scientific pharmacy, and no important new fact or discovery is overlooked, it *particularly aims to be practical*, providing the busy pharmacist with reliable working formulæ, practical hints for dispensing, suggestions for improved apparatus or appliances suitable for his business; and that this feature is fully appreciated, is amply testified to by our correspondents, and by our very large subscription list.

For the coming year, we do not need to make any special promises, except perhaps to say that our aim will be to constantly augment the usefulness of the journal, and to still better merit the approval of our readers.

On Cocaine and its Hydrochlorate.

COCAINE, the alkaloid of *Erythroxylon Coca* Lam., was discovered by Niemann in 1860, and afterwards studied by W. Lossen (1862) who assigned to it the formula $C_{17}H_{21}NO_4$.

Niemann prepared cocaine by exhausting coca leaves with eighty-five per cent alcohol, containing $\frac{1}{10}$ of sulphuric acid, supersaturating the alcoholic solution with lime, then neutralizing, carefully, with diluted sulphuric acid, separating the precipitated sulphate of calcium, and distilling off the alcohol. The residuary liquid is supersaturated with soda and then shaken repeatedly with ether which dissolves out the cocaine. On evaporating the ethereal solution, cocaine remains behind in an amorphous condition, but soon becomes crystalline. It is somewhat purified by washing with a little strong alcohol [?], and then recrystallized from highly dilute alcohol.

Lossen extracts coca leaves with rain-water, precipitates with acetate of lead, removes the excess of the latter remaining in solution by means of sodium sulphate, filters and adds soda to the filtrate in slight excess. On shaking this mixture with ether, only *cocaine* passes into solution, while *hygrin* remains in the alkaline liquid. The crude cocaine obtained after the evaporation of the ether is dissolved in very dilute hydrochloric acid, and this solution dialyzed, the cocaine passing through parchment paper, while most of the accompanying coloring matter remains behind. From the dialyzed acid solution the alkaloid is then precipitated with soda, and obtained pure by several times recrystallizing it from alcohol.

Lossen obtained, in the most favorable case, 4 parts per 1,000, and from poor material only 1.6 parts per 1,000.

Cocaine crystallizes in four or six-sided monoclinic prisms. It is soluble at 12° C. in 704 parts of water; easily soluble in alcohol, and still more so in ether. It melts near 92°.

From a dilute aqueous solution of hydrochlorate of cocaine, the alkaloid is precipitated by caustic alkalies and their carbonates, also by ammonia and ammonium carbonate, though the latter cause a considerable portion to be retained in solution. Bicarbonate of sodium and potassium yield a precipitate only in its concentrated solution. Sulphocyanide of potassium renders its solution but slightly turbid. So also tannic acid, provided free hydrochloric acid is present. Stannous chloride causes a white precipitate soluble in much nitric acid; mercuric chloride, a copious precipitate rapidly becoming flocculent, soluble in alcohol and hydrochloric acid; picric acid, a pulverulent, yellow precipitate soon becoming resinous; phosphomolybdic acid, a yellowish-white flocculent precipitate; iodine water, or iodized iodide of potassium, a kermes-brown precipitate.

Dilute acids do not alter cocaine, but concentrated acids (sulphuric, etc.) change it into *ecgonin*, benzoic acid, and methyl alcohol, or rather the ether of the latter. Ecgonin is a product of the decomposition of cocaine, and not a natural constituent of coca leaves.

Cocaine combines easily with dilute acids, forming easily crystallizable salts, which are soluble in alcohol, but *insoluble in ether*, have a bitter taste, and leave a transient sensation of insensibility upon the tongue.

Hydrochlorate of cocaine, $C_{17}H_{21}NO_4.HCl$, separates from its aqueous solution in short transparent prismatic crystals which are permanent in the air.

Acetic acid dissolves cocaine readily, but on evaporation the base separates again in crystals. Niemann took these for the acetate.

Nitrate of cocaine crystallizes with great difficulty.

Neutral sulphate of cocaine is a transparent gummy mass, becoming only slowly crystalline.

Cocaine is accompanied, in the coca leaves, by a volatile and liquid alkaloid, which remains behind when the aqueous extract, supersaturated with soda, is shaken with ether. It may be separated by distilling the aqueous liquid, or by distilling the leaves with water. It has an odor resembling that of trimethylamine, has a bitter taste, and an alkaline reaction, but is not poisonous.

We are informed by Mr. E. Merck that he manufactures both the pure alkaloid cocaine, as also the following salts: hydrochlorate, salicylate, hydrobromate, tartrate, and citrate.

From a communication received from Mr. Merck, we select the following interesting data:

Schroff who made the first experiments with cocaine, in 1862, observed that it caused fluctuation in the respiration and pulse, and produced mydriasis. Fronmüller (1863) found that it had but little effect in man, in doses of 0.03 to 0.33 Gm. ($\frac{1}{2}$ to $\frac{1}{4}$ grain), and in the case of an attempted suicide, 1.5 gm. (24 grains) did not even produce serious results. The fatal dose, therefore, seems to be much higher, unless the cocaine used in those days was very impure.

According to Merck, coca contains between $\frac{1}{2}$ and $\frac{1}{10}$ per cent of cocaine. The average effective dose of his hydrochlorate, in man, is stated to be 0.05 gm. ($\frac{3}{4}$ grain).

Last year, cocaine was recommended as a remedy in cases of great exhaustion from various causes. Its use in such cases suggested itself naturally

from the well-known fact that coca has long been used as a preventive of the waste of tissues, fulfilling the same function as tea, coffee, and other substances of this nature. It has also been found of great value in the treatment of morphinism, supplying the craving for stimulants resulting from the gradual or sudden withdrawal of morphine or opium. A similar use has suggested itself in the treatment of alcoholism. Dr. Freud has reported very favorable results in morphinism: when morphine is to be slowly withdrawn, the dose is gradually lowered and that of cocaine proportionately increased. When the withdrawal is to be done suddenly, doses of 0.1 gm. (1½ grains) of cocaine are injected hypodermically, as often as hunger after morphine sets in. Dr. Freud reports complete recovery in one case after ten days' treatment, and believes that there is a positive antagonism between morphine and cocaine.

It has been often noticed by different experimenters since 1863, that cocaine produces temporary insensibility or numbness when applied to certain mucous membranes, but no practical use suggested itself until quite recently. [In the United States it has been used to a considerable extent to lessen the irritability of the soft palate and pharynx in laryngoscopic examinations.]

Dr. Koller, of Vienna, the discoverer of the anæsthetic effect of the remedy, had experimented upon the eyes of animals and a few times also upon his own, and found that immediately after the instillation of a two-per-cent solution of hydrochlorate of cocaine into the eye, there was felt a short feeling of burning lasting for about one-half minute which was soon followed by an indistinct feeling of dryness. The aperture of the eyelids appears wider, and reflex actions (such as is usual when the cornea is touched: twitching of the head, of the lids, turning aside of the bulb, etc.), disappear. When this condition prevails, pressure may be made upon the cornea or a portion of the conjunctiva be caught with pincers, without any disagreeable sensation being felt. The anæsthesia of the eye lasts for about ten minutes, and a low degree of sensibility persists for several hours. Twenty to thirty minutes after the application, the pupil becomes dilated, returning in about twelve hours to its normal condition. The only abnormal symptom observed during this condition is a slight paralysis of accommodation which can, however, be overcome by a little effort.

Since Dr. Koller publicly exhibited his experiments and prophesied for cocaine a speedy general use in ophthalmological practice (for operations, etc.), the new drug has been experimented with in all countries, the United States included, and those who have used it and seen its operation are quite enthusiastic over it. Moreover, it has already been ascertained that it acts as an anæsthetic not only on the conjunctiva of the eye, but on all mucous membranes. The supply in this city has mainly been obtained from Mr. Foucar, a pharmacist on the corner of Third avenue and Thirty-third street, and it is reported that attempts by several other manufacturing chemists to prepare the muriate have been moderately successful. At present the salt is eagerly bought at the rate of fifty cents per grain. The demand upon the manufacturers of the alkaloid must have come to them so suddenly and so overwhelmingly that it will be a difficult matter for them to supply it for some time to come. Up to September of this year, both cocaine and its hydrochlorate were quoted at about seven marks per gramme in the price list of several German manufacturers. At present and probaby for a long time to come, it will fetch a greatly increased price.

Experiments are at present being conducted with the decomposition-product of cocaine, namely, ecgonine, and Mr. Merck promises to communicate the results at some future time.

SINCE writing the preceding article, further information has reached us regarding the usefulness of this new drug. Indeed, it would seem as if its applicability were to turn out as manifold as that of any old-established drug, if not more so.

Prof. W. M. Polk, M.D., has used a four-per-cent solution of cocaine as an anæsthetic in an operation for abscess of the liver, the solution being applied to the open wound, and under its anæsthetic effect the operation was completed within twenty-five minutes, without any discomfort to the patient. It is, however, not likely that cocaine will displace ether and other well-known anæsthetics, since it is probably incapable of exerting its influence over a large wound, and moreover, it is not likely that it will be available in sufficient quantity for a long time to come.

Dr. F. H. Bosworth reports, in the *Medical Record* (Nov. 15th), that on applying a solution of cocaine (2%) to the nasal passages, the venous sinuses below the mucous membrane become, within twenty or thirty seconds, so rigidly contracted as to expel all the blood contained in them, and to cause the membrane to cling closely to the bony structure which then becomes sharply outlined. He has used the drug in hypertrophy of the nasal mucous membrane (*nasal catarrh*), acute *coryza* and in operations for nasal *polypus*. In each case the venous congestion or turgescence was so thoroughly kept down that all discomfort was removed, and in the case of polypi not only the recognition and removal of the growth became quite easy, but also turned out a bloodless operation.

Dr. Bosworth also suggests the use of cocaine in hay-fever.

[A four-per-cent solution is now generally preferred when prompt action is required.—ED. A. D.]

We may add that the drug appears to us to be of value particularly also to *dentists*. Its application to the gums and fauces will probably be found to be followed by sufficient local anæsthesia to permit the extraction of carious teeth, and it will probably not be necessary, except in special cases, to administer gas.

In *toothache*, the drug promises also to be very useful, and our readers troubled with this unfashionable complaint may quickly convince themselves of the value of our suggestion.

The action of coca and of cocaine to repress the sensation of hunger, is no doubt partly (or mainly) due to the physiological effect which the drug exerts upon the mucous membrane of the stomach and intestines, an effect which is probably analogous to that which Dr. Bosworth describes in the case of the nasal passages. Through the repression of circulation in the mucous membrane of the stomach (and accompanying repression of the gastric juice), the process of assimilation is temporarily suspended, and cravings of hunger suppressed until the effects of the drug wear off. That coca actually can allay hunger for a considerable time is well-known, and there is even a case on record when a number of miners had been buried alive in a South-American mine and kept themselves alive, without food or drink, for twelve days with their small supply of coca.

If ever a remedy, on purely theoretical grounds, held out any hopes of being serviceable in *sea-sickness*, it seems to us that cocaine is one of these. At all events, it will be worth while to try its effects.

The new French Pharmacopœia.

SHORTLY after the Codex had been published some months ago, very serious criticisms were made on all sides, both in France and in other countries, regarding the numerous errors with which the work abounded. The complaints were urged with so much force that the Government instructed the Commission to immediately prepare a corrected edition, which has been done in two ways; namely, first, in the issue of an entirely new edition in which one hundred and thirty-two alterations were incorporated, and secondly, in the publication of a separate pamphlet of eight pages in which, besides the above 132 changes, 83 further alterations are directed to be made, making thus 215 changes or corrections altogether. The official authority of the *pamphlet* appears, however, to be somewhat uncertain, as it contains neither signature nor date, and only bears a note saying "that the quoted corrections had been decided on by the *Commission du Codex* and the *Société de Pharmacie de Paris*, and that most of them had been incorporated into the second issue of the [new] Codex; but that such errors as are found in *both* issues of the work are distinguished in the pamphlet by *italics*."

Of the changes officially determined on, 12 refer to the preface, 10 to the preliminary notices, 22 to crude animal or vegetable drugs, 30 to chemicals, 127 to galenical, and 7 to veterinary preparations. The index, which was by no means free from mistakes, remained unchanged.

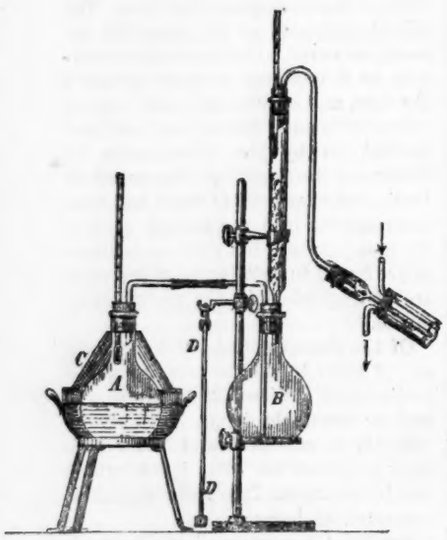
But the "corrections" of the errata have in some cases introduced new ones, some of which it is actually a surprise to see in a work supposed to come from first-rate authorities. To quote only one instance, the *English* ounce, according to the list of corrections, is stated to have 8 drachms, a drachm 3 scruples, and 1 scruple 20 grains, which of course is the apothecaries' or troy ounce, while the English ounce contains 437.5 grains.

The list of errata evidently was compiled with as much carelessness as the original work itself; for instance, in fifteen instances, the corrections to be made do not belong to the pages indicated, but to a neighboring page, which is apt to cause confusion.

Still more is to be regretted the *incompleteness* of the list of errors, because it is to be feared that those who have the work with the "errata," will now suppose the work as perfect as possible, and not requiring further scrutiny. But aside from several dozen misprints, the work, even after all apparent corrections, still contains dozens of errors, miscalculated figures, or misleading statements, which we refrain from quoting, as the original is but sparingly in use here. A large number of these errors had been criticised and their correction indicated in the German pharmaceutical press, shortly after the original had appeared. But no French pharmacist or member of the French Commission of Revision appears ever to have heard of these articles or taken any notice of them. If they had, they would have been able to avoid or correct many other mistakes. The discovery of most of them is due to the searching criticism of Dr. Bruno Hirsch, from whose papers on the subject, in the *Pharm. Centralh.* (1884, No. 36, 37) we have extracted the above statements.

On the Keeping Properties of Morphine Solutions.

A CORRESPONDENT of the *Pharm. Centralhalle* (No. 24) states has he has found solution of hydrochlorate of morphine to keep quite well, if made with doubly distilled water and with a morphine salt free from dust. The author has been in the habit of dissolving 10 Gm. of the hydrochlorate in 200 C.c. of twice-distilled water at a temperature not exceeding 35° C. (95° F.). Filtration is only performed when solid particles are seen to float about in the liquid. [The author evidently ascribes any developing fungi, etc., to the accession of dust to the salt, which indeed is likely to be the chief cause. Yet it seems to be almost impossible to prevent the access of germs to the contents of a bottle, or to the mass of crystals when put up in bottles by the manufacturer.]



APARATUS FOR FRACTIONAL DISTILLATION.

THE following arrangement is recommended by L. Weigert:

A is a flask of the capacity of three or four pints, in which is contained the liquid which is to be subjected to fractional distillation. This is heated by a water-bath, or a solution of chloride of sodium, or a sand-bath, according to the liquid to be distilled. *B* is a flask of equal size, upon which is attached (according to Hempel's suggestion a glass tube filled to three-quarters with pieces or beads of glass, and sixty-five cm. (twenty-five inches) in length. The two flasks are connected by a bent tube which should not be too narrow and which is best put together from two pieces, joined by rubber-tubing. In order to distribute the heat uniformly, a hood of tinned iron, *C*, is inverted over the flask *A*. This hood is provided with hinges and may be opened. It has the additional advantage of preventing the contents of the flask from being scattered about if it should crack or break. Between flasks *A* and *B*, a piece of window-glass *D* (in a frame) is suspended, partly to prevent too much radiation of heat towards flask *B*, and partly also to act as a sort of screen in case the flask *A* should break. For the same reason, the two flasks should be at least thirty to thirty-five centimeters (twelve to fourteen inches) apart.

The other portions of the apparatus and its use are self-evident. Its great practical utility may be judged from the fact that a single distillation is able almost completely to separate alcohol and ether, which is not possible by merely using a Hempel's tube (filled with glass beads). Another advantage is, that when heating alcohol of not over fifty per cent (which may be done on a sand-bath), a Liebigs condenser rendered unnecessary; in fact, the apparatus is then self-condensing. —*Zeitsch. Anal. Chem.*, 23, 365.

Relationship between the Terpenes of Oil of Orange and Oil of Levant Wormseed.

WALLACH and BRASS have quite recently published an elaborate paper on the constituents of oil of Levant wormseed, in which they show that the contradictory results obtained by previous observers were caused by certain unsuspected facts or defective manipulation. They have cleared up the subject quite thoroughly, but have only room for a short abstract of a few of the more interesting portions.

The crude oil contains an oxygenated body, $C_{10}H_{18}O$, which is best isolated by conducting dry hydrochloric acid gas into the well-cooled oil, removing the crystalline magma and expressing the liquid portion, then treating the crystals with water, which causes them to disappear, while an oil makes its appearance, which is to be treated in the same manner until the crystals are pure and white. The oil obtained from these is then dried and rectified. This substance is called by the authors *Cyneol;* it boils at 176°–177° C.

From the preceding it will be seen that if hydrochlorate of cyneol is treated with water, it splits into its components. If, however, the compound be heated without water, in a closed tube, it splits into two layers, one consisting of a body devoid of oxygen, while the other contains more than the original cyneol. The former, after purification, turned out to be a hydrocarbon, $C_{10}H_{16}$, which the authors name *cynen*, restricting the use of this name (which has been already employed by others) to the narrower limits defined by them.

This pure *cynen* has the remarkable property of possessing a most agreeable odor of lemons, which is noticeable even in a weak alcoholic solution. If the hydrocarbon is contaminated by foreign bodies, the odor is more or less masked.

This remarkable fact led Wallach to suspect that cynen might be identical with some of the terpenes occurring in essential oils of the orange family. One of the characteristic properties of cynen is, that it may be converted with the greatest ease into a crystalline tetrabromide. Ordinary terpenes, obtained from pines, do not possess this property at all; nor could any such compound be obtained from oil of eucalyptus or oil of bergamot. Oil of lemon, when treated with bromine, yielded but a very slight quantity of crystals. But oil of orange, no matter from what source, yielded a most copious crop of crystals (tetrabromide) of great beauty, which have great similarity with those obtained from cynen. They differ, however, in melting points. Tetrabromide of cynen melts at 125°–126° C., but tetrabromide of hesperidene (the name of the terpene of oil of orange) melts at 104°–105° C.

The two terpenes, therefore, seem to be closely related to each other, though not identical.

[Note by ED. AM. DR.—The concentration of the manufacture of santonin in the home of the mother-plant, Turkestan (see our November number, p. 204), where the future annual production of santonin is estimated at 32,000 pounds, will probably make it a profitable undertaking to separate the cynen on a large scale, for purposes of perfumery or flavoring-essence.

Levant wormseed, or santonica, contains about an equal percentage (1 to 2) both of santonin and of essential oil. Hence it should be possible to obtain about 32,000 pounds of the latter. The larger portion of the oil consists of cyneol, and every 10 parts of the latter yield very nearly 9 parts of cynen.]

Glycerin-Jelly for Microscopic Mountings.

IN place of fir, or Canada balsam, which has hitherto very generally been used for this purpose, glycerin-jelly may be used with great advantage. This must be prepared, for this purpose, with great care. The finest colorless gelatin is soaked in water until it melts, after the excess of water has been poured off, at the boiling point of water. The whole of the soaked gelatin is now melted in a glass-vessel by dipping the latter in boiling water, glycerin is carefully added by drops and thoroughly mixed with it, until the proportion is such that the mass, after having been allowed to become solid, will melt exactly 50° C. (122° F.). This point is important, because a glycerin-jelly melting at a higher temperature easily abstracts water from the object, and thereby may alter its natural appearance.—*Ind. Blätter.*

New Method of preparing Barium Permanganate.

BARIUM permanganate is an important salt, since it is the most suitable starting-point for making permanganates of other bases.

All attempts to obtain barium permanganate directly from manganic peroxide and barium salts have failed; but a satisfactory method was found by G. Rousseau and B. Bruneau in the decomposition of potassium permanganate by hydrofluosilicic acid, using the latter in slight excess. The mixture is kept cool, and after the separation of the potassium fluosilicate, the clear supernatant liquor is decanted, and the deposit drained on an asbestos filter and washed. The solution, containing permanganic and hydrofluosilicic acids, is saturated in the cold with barium hydroxide. The solution of barium permanganate, after separation of the insoluble barium fluosilicate, is evaporated until the salt crystallizes out on cooling. The crystals may be obtained in very large orthorhombic octahedra, almost black, with a violet reflection.—*Compt. Rend.* and *Journ. Chem. Soc.*

The Purity of Iodoform.

IN addition to the usual or possible impurities contained in commercial iodoform, which are readily detected by a systematic analysis or by the special tests given in the pharmacopœia, there appear to be often certain others present, the nature of which is not quite understood, and which have probably not been exactly identified. Dr. Brouma, in Leyden, was led to believe that the discordant results obtained by various experimenters with iodoform were, at least partly, due to the presence of certain impurities, and after having made a large number of experiments with *pure* iodoform which had been found to stand the (additional) test given below, he found that it did not produce the toxic symptoms reported by others or at least but rarely. The test is the following: A certain quantity of iodoform is shaken for some time briskly with distilled water, and the mixture then filtered. The filtrate is mixed with a little alcoholic solution of silver nitrate, and the mixture set aside for twenty-four hours. If the iodoform was impure, a black precipitate, consisting of reduced silver, will be formed, while, if the preparation was pure, there will only be a faint whitish-gray turbidity. All samples of iodoform which produced toxic symptoms, when tested in the above manner, reduced the silver solution.—*Journ. de Pharm. d'Als.-Lorr.*

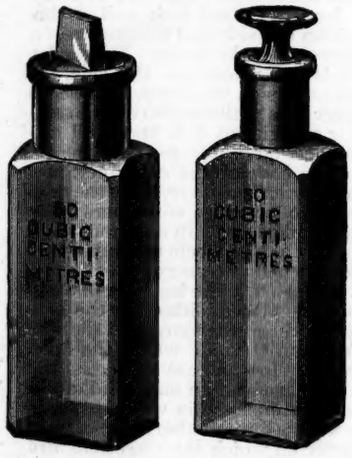
NOTES ON PRACTICAL PHARMACY.*

CONTAINERS AND THEIR CLOSURE.

THE vessels for the reception of medicine are made of glass, porcelain, clay, wood, and paper [and metals].

The *medicine* or *mixture bottles* are of glass, and of various sizes, corresponding to certain volumes measured either by fluidounces or by cubic centimeters.

[In European practice, it is often customary for the prescriber to designate the kind of bottle or receptacle in which a mixture or other medicine is to be dispensed. This is but rarely done here, except by physicians educated abroad, or in the case of certain substances affected by light which are directed to be protected therefrom, though the directions are frequently erroneous. Whatever shape is selected for the container, attention should be paid to the form of the lip, since its contour plays an important part in discharging the contents, in drops or otherwise, without allowing it to flow down the outside of the neck and soiling the outside of the bottle. What is known in this country as the "prescription lip" is the shape generally employed. In this, the orifice is beveled instead of flat, as in ordinary bottles.



In the U. S. Marine Hospital Service, where the metric system has been established as a basis for prescription and pharmaceutical work, a glass-stoppered vial is in use, which is shown in the above illustration (furnished by H. C. Fox & Son, Philadelphia). These vials have the capacity indicated by letters formed on the glass.]

For medicines containing substances decomposable by light, such as free chlorine, silver solution, dark bottles are used, or such as are coated with dark oil-paint or varnish, or with black, glazed paper. The darkened bottles [as well as all bottles and vials used for prescriptions] must be thoroughly cleansed, dried, and kept stoppered, so as to prevent the accumulation of dust in them.

[One disadvantage of perfectly dark and non-transparent bottles is that it is almost impossible to insure their absolute freedom from dirt or foreign substances. If the bottles are new, however, or the nature of their previous contents exactly known, the dispenser will sometimes prefer them even to the best unactinic glass in existence.

It is a very prevalent custom of prescribers to direct certain substances, such as nitrate of silver, santonin, etc., to be dispensed in blue vials; and it is even yet customary with certain chemical manufacturers to put up these goods in such vials, though they certainly must know that the color is no protection. This is an instance to show how hard it is to eradicate old habits, particularly of trade. Blue glass does not arrest the actinic or chemical rays of light at all, but it arrests (more or less) the luminous rays. Photographic galleries are sometimes entirely covered with blue glass, so that a stranger might suppose it impossible for a good picture to be taken in an apparently obscure place; and yet the result will prove as satisfactory as if the picture had been taken in the open air.

The best color to exclude the actinic rays is that deep orange-red imparted to glass by gold or copper. Gold-tinted (or gold-flashed) glass is rarely used for ordinary purposes, its principal uses being for ornamental glass-ware or for window-panes for photographic dark-rooms. Copper-tinted glass (likewise a kind of red-orange) is that usually sold, though it is not as commonly used as it ought to be. In place of it, the ordinary amber (dark- or light-brown) glass is employed, which is in practice sufficient, though it is *not* an absolute protection to the contents.

Of late years, it has become quite customary to employ bottles of special shapes and colors for dispensing poisonous liquids and solids. The shape of these is either triangular, or so-called "panel," or round, or fluted; and the color usually blue. Among the round blue bottles, those which are studded with a number of projecting diamond-shaped points are undoubtedly the most useful, since they enable a person to recognize such a bottle even in the dark. This idea has lately been carried still further, by supplying the market with cork-mounted glass stoppers provided with projecting points and edges, which are calculated to attract the attention of the person handling the bottle.

In the public hospitals of the city of New York, two kinds of so-called poison bottles are used. One is the usual commercial blue poison bottle which is used *only* for poisonous external medicines. The other variety is a similar bottle, made in the same moulds, of *white* glass, which is employed for all powerful or dangerous *internal* medicines. The chances of making mistakes are greatly reduced by using this kind of glass-ware.]

For jellies, electuaries, or ointments it is customary to use a *pot* or *jar*, a large, wide-mouthed vessel of glass, porcelain, or stone-ware. There are also ointment pots with elegant covers of wood and cork. The *powder* or *pill bottles* (salt mouths) differ from the ordinary bottles only by a larger opening. These are also supplied with elegant stoppers or lids [of wood or metal].

Of late, there are also to be had cylindrical glass vessels closed with a metallic screw cap. Inside the metallic cap is a plate of cork which, pressed on the mouth of the vessels by the force of the screw, effects hermetic closure.

[Another container for ointments and cerates, which has come into general use of late years, is the collapsible tube of metal with a screw cap, similar to those used for artists' colors.]

A good substitute for the cork plate in the screw cap will be found in a paste-board disk saturated with paraffin. With this, the closure can be made more certainly air-tight. [For some purposes, small-sized so-called preserve jars, made air-tight by a rubber ring between neck and top, are preferable.]

The *boxes* for *powders* and herbs are round and have an overlapping lid; but those intended to contain several powder papers are square and open like drawers, or they have the form of pocket-books. They are called con volutes.

Prescription bottles are closed with corks, of which the better grades [so-called XX] should be selected. The inferior, worm-eaten, and porous ones should be discarded. In order to have the cork close tightly, select one the narrow end of which has a *slightly larger* circumference than the mouth of the bottle. It is improper to soften the cork and make it fit by pressing it between the teeth.

[Some persons do not realize how repulsive and expensive this practice is—repulsive at least to the customer who sees the dispenser chewing the cork, apparently for the purpose of cleaning his teeth, and then inserting the "salivated" cork in the vial containing his medicine. Expensive to the dispenser, as the same customer will certainly never return.] It should be beaten soft rather with

Cork-tong.

some weight or a pestle, but it is still more practical and handier to employ for this purpose the *cork-press* or *cork-tong*. The latter is unquestionably the handier for use. It is kept in the cork drawer. Where the end of the spring *b* rubs against the arm *a*, some oil should now and then be applied when it works hard. [A still better contrivance for squeezing corks is the cork-roller invented by Lochman, familiar to most pharmacists in the United States, and the cork-compressor illustrated in the adjoining figure. The principal advantage in the latter appliance is the fact that but one hand is required to hold the cork and operate the machine. By depressing the lever, the jaws exert a powerful grip upon the cork and relax their hold when pressure on the lever is removed.] The medicine bottle is thus closed with the cork: it is set down on the counter, held by the neck with the thumb and index finger of the left hand, and the cork inserted to half its length into the mouth of the bottle by a twisting motion with the right hand [towards the right]. It is not advisable to grasp the bottle in the whole left hand to cork it, because the vessel is not always strong enough to withstand firm pressure from without. For the same reason the bottle must never be held over the cork-drawer while it is being corked. After the cork is inserted, ascertain whether the closure is perfect, by inverting the bottle and striking the corked end several times against the palm of the left hand. Any escaped droplets are

*The basis of this series of papers is the latest edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany, and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [ ].

The use of the original text has been kindly granted by Mr. Hager.

easily recognized on the dry surface of the hand.

The larger corks should be kept separate from the smaller ones, for the jarring to which the cork-drawer is subjected causes the small corks to gravitate downward and the larger ones to accumulate at the top, whereby selection is rendered more difficult.

A sufficient number of containers, according to the extent of the business, should be cleansed of adhering straw, dust, sand, etc., and stored in the neighborhood of the prescription counter in the order of their capacity, lest the prescription clerk be delayed in his work by having to cleanse or search for them. It is, moreover, the duty of a prescription clerk to examine carefully every glass or other vessel before he uses it, for it must have no crack or defective neck, or be unclean. The removal of dust from the interior is done with a clean feather or a bottle-brush made of brass [or iron] wire, to the lower end of which bristles are fastened. Different sizes of such brushes should be suspended from nails near the prescription counter. Where there is a large trade, the vessels are kept on hand dusted, washed with distilled water, and dried. To keep the dust out, the bottles are kept closed with paper caps [or corks].

[For dispensing corrosive liquids, such as acids, caustic alkalies, and some of the caustic solutions of iron, iodine, etc., it is customary to use either stoppers of vulcanized rubber, or corks which have been soaked in melted paraffin until the pores of the wood are filled with the paraffin. These are less expensive than glass stoppers, and have the advantage of being adapted to a variety of bottles.]

Stone jars and pots, if necessary, are freed with an iron spatula from the sand and bits of glaze adhering to their inner bottom. [In this country it is not usual to select such rough and cheap ware for dispensing ointments and the like. Porcelain or delf-ware is usually preferred; or, where the contents are not affected by metal, neat tin boxes are employed, which may be had of all shapes and sizes, soldered or seamless. In fact, the variety of containers for all purposes of pharmaceutical dispensing and counter-trade is very large, there being a sort of rivalry among our manufacturers as to variety and good taste employed for this purpose.]

Every *envelope*, *bag*, *capsule*, or other paper-container, should be made of clean paper; it is best to select for this purpose white *smooth* qualities, as dry powders are liable to adhere to rough paper surfaces. For substances which readily absorb moisture, which are sticky or greasy, waxed paper, or, better, paraffined paper, is employed [and, if necessary, an outer wrapper of parchment-paper or of tin-foil is applied]. Where it seems indicated, the medicament is delivered sealed.

LABELS.

The label or directions for a medicine must be written legibly and strictly according to the statement on the prescription. The name of the patient is written above, the date at the lower margin, and between these the directions in full words. Even the numbers must be written in words. Besides, a label must contain the name and address of the druggist. It is not permissible to place any other personal remarks upon labels, and if directions are necessary as to the keeping, shaking of the mixture, etc., they might be given verbally to the messenger, or better be written on a separate piece of paper and put with the medicament. Where several prescription clerks are employed, the preparer should mark his name on the margin of the label, not conspicuously, but in small letters at the very edge of the label. [Some of these directions, though sanctioned by long custom and partly by official authority, are nevertheless capable of criticism and improvement. Indeed, the author himself recognizes the defects, and recommends something better. It is pure obstinacy and adherence to old fashion to use the flying paper strip, merely tied to the neck of the bottle, for the purpose of containing the directions. Nothing but a label permanently fastened to the bottle should be used. And it is unwise to trust such directions as: "Shake before using"; "keep in a dark or cool place"; "do not open near lights or fire," etc., to the messenger; they should invariably be written or otherwise affixed to the bottle in a conspicuous place, best perhaps across the slope of the shoulder, where the label will most prominently strike the person handling it. It is true that a defence of the loose paper strip label might be made by showing how easily it is detached when the bottle is needed for something else, and how frequently a *pasted* label is left on a bottle when it has been filled with entirely different contents (which often has led to serious results). Yet this cannot be helped. The object is, that the contents of a bottle containing medicine should be clearly and permanently indicated and identified by the label *as long as the bottle is in legitimate use* for this purpose. What becomes of it afterwards is not the concern of the dispenser.]

The paper for labels should have sufficient body, be *white* in the case of drugs for internal use, *pink* or *light blue* [in this country and others, a bright brick-red is preferred], if for external use. Labels which can be pasted to the walls of the vessel are to be preferred. For this purpose it is customary to keep on hand a small pot with mucilage of tragacanth (so-called gum-pot) and a small camel's hair brush sticking in it. [Tragacanth paste is too stiff for anything softer than a bristle-brush.]

[In the establishments (hospitals, infirmaries, etc.) where a large number of prescriptions have to be put up and kept on hand in the sick room for the different patients, it is necessary to use special precautions so as to avoid accidents. In the course of an experience of many years, it has been found useful to establish the following rules, for instance, in the public hospitals of New York City:

1. Medicines for Internal Use.

a. Ordinary medicines for internal use, which even if taken by mistake in *one* dose, are comparatively harmless, are to be put up in the ordinary white or green glass-ware, and labelled with a *white* label, giving name of patient, number of prescription, ward, bed, and dose.

b. Medicines for internal use, which contain powerful ingredients, and which, if administered by mistake in *one* dose, would produce serious results, and hence necessitate more than usual care in their administration, must be marked, besides, with a red label containing the word "Care!"

c. Medicines which are *altogether composed* of one or more powerful ingredients, and which are usually administered in small doses, must be put in a *white* poison-bottle, with a label stating the nature of the contents, and an additional care-label.

2. Medicines for External Use.

a. Medicines for external use, and not calculated to act injuriously when by mistake administered internally, may be dispensed in the usual white or green glass-ware, but must be marked with a *Red Label*, giving name of patient, number of prescription, ward and bed, and bearing the words "For External Use Only."

b. When it is desired to draw special attention to the contents, or when a medicine for external use contains ingredients which would render its administration dangerous, an additional Care! label must be attached.

c. Medicines for external use, which are highly poisonous, corrosive, caustic, or otherwise injurious, must be dispensed in a *blue* Poison-Bottle, labelled with a *red* label.

These rules may at first sight look complicated to one unfamiliar with them; but they will be found to be easy of application. When the dispenser is in doubt as to which class a medicine belongs to, he will usually do best by rather classifying it with the more dangerous ones.

In regard to *red* paper for labels, it may be incidentally remarked that the ordinary poison-label paper which is coated red on *one* side only, is not to be recommended, since the color is apt to be washed off when a liquid comes in contact with the label. The best paper is that which is dyed red *in the pulp*, and therefore contains the coloring matter in its fibres. The red should be a bright, fiery red.]

When a prescription is to be repeated, and to this end the former vessel with the label is sent to the drug store, it is the rule to use a new label in place of the old one. On bottles the label is fastened so that it projects under the knot of the twine tied over the cap, for it does not look well if this knot is on one side and a signature on another side of the bottle. Labels for pill-vials are pasted on the side, for ointment jars on the cover, in the case of larger pots perhaps also on the side. [In our experience, it is under all circumstances advisable to paste the label on the *body* of the container, and not merely on the cover, since the covers of two or more containers may easily be misplaced. In addition, each cover may also be labelled or otherwise marked, when necessary, so as to prevent confusion.] The knot for the cap on pots is placed either on the side turned to the lower margin of the signature or on the side where the label is pasted. In the case of boxes, the directions are written on the lid, and a preparation inclosed in waxed paper is to be wrapped in another piece of writing paper on which the directions are written.

Pill vial with screw cap of Britannia metal.

In the drug stores of larger cities [in Germany] where a prescription-book is kept, the labels bear at their upper end a space intended to receive the number given to the prescription in the book. Underneath is this notice: "*If the prescription is to be repeated, it is only necessary to show the label.*" On the labels of some establishments we also find in the two lower corners the words "*paid*" and "*account.*" One or the other is cancelled by the prescription clerk, according to whether the prescription is paid for or not.

For pill-vials and vials to contain powder mixtures, labels for pasting are kept on hand. The paste consists of mucilage, as stated above.

As soon as a prescription is finished, it should at once have its label attached. Mistakes are very liable to occur if several prescriptions are first filled and then labelled one after another—a practice which unfortunately still prevails here and there.

CAPPING.

Medicine vessels, boxes excepted, are capped, that is, provided with a cap or cover. [This is frequently omitted in this country.—ED. A. D.] A cap should surround the margin of the mouth of the vessel snugly and as smoothly as possible. The cap consists of a double

Sealed cap.

layer of paper. For the the top layer it is customary to use a glazed, colored (non-poisonous) paper; for the lower, a clean white thin paper; but for salves and electuaries [in place of the latter], waxed paper. When tying the cap, another piece of soft paper is laid over the external layer, lest the latter be soiled while being pressed down and smoothed with the hand. After the smoothing, the soft paper is removed and the cap fastened by two turns of twine. The ends of the twine with which the cap is tied may be sealed to the latter, which is a commendable practice.

[For the benefit of those who have not the skill to fold a paper cap handsomely, as well as to save time in the production of a handsome cap, the article known as "Hunt's Pleated Cap" will be found very useful. They can be had in all colors, and, if desired, with the word "poison" or an address printed on them.

Another useful cap is made of rubber in the form shown adjoining. It is especially serviceable for bottles that have to be packed in a travelling bag or instrument case, and insures against escape of their contents. It is made of various sizes, holding from one-half to two teaspoonfuls, and can be used, if occasion requires, for a dose measure.

Still another elastic cap is shown here. This avoids the necessity for using another stopper, as it is alone capable of retaining the contents of the bottle to which it is adapted.

Instead of using a cap which covers the cork and neck of a bottle, as above described, many pharmacists use a circular label which is pasted on the upper end of the cork, and forms an elegant finish. These usually bear the name of the dispenser, and sometimes his address. They are more quickly applied than the sealing-wax, and are not so liable to become detached in use.]

On boxes the seal joins the lid to the body, for which a small drop of sealing wax suffices. The "convolutes" are wrapped in paper and the latter sealed. The twine for tying caps may be either white, bleached or colored, 0.7 to 0.8 millimeters thick. It is generally wound on spools and kept in one of the drawers of the prescription counter or in a box. The double twine box is intended to contain two thicknesses of twine.

The twine reel may contain one or more reels, each of which has a handle to facilitate winding up. The foot is of zinc and very heavy. The frame and the small cutting blade for the twine are of iron.

Twine reel.

[Equally serviceable is a heavy bell of glass holding a ball of cord; no bottom is required, the counter or shelf on which it stands serving as a support. A hole in the top of the bell gives exit to the free end of the twine. In using a twine-ball, the inner extremity of the twine should be drawn from the opening in the ball, and the outer end should not be disturbed. This permits the ball to remain of the same external dimensions until the twine is nearly used, and, moreover, prevents snarling.]

(To be Continued.)

Universal Varnish.

CAMPE recommends the following varnish as equally suitable for paper, metal, wood, etc.

Mix 60 parts of bleached shellac, 60 of Manilla copal, 60 of mastic, 15 of Venice turpentine, and 1000 parts of alcohol (92 to 95 per cent); add a little coarsely-powdered glass, and allow to stand about two weeks, frequently shaking. Then add *1 part* of boric acid (which renders the varnish still harder), and filter. [Filtration of alcoholic solutions of resins is best facilitated by mixing the turbid liquid with a little plaster of Paris which envelops the suspended impurities.—ED. A. D.] The filtered varnish may be colored by alcohol-soluble anilin colors, and in this condition serves as fancy varnish or lacquer for coating bottle-caps, tin-boxes, etc.

The Manilla copal should be powdered, the author having made the observation that copal, after having been powdered and then exposed to the air for some time, is much more rapidly soluble in alcohol. The addition of 1 part of alcohol-soluble aniline orange to 100 parts of the varnish makes a very handsome gold-lacquer.—*Rundschau.*

Gelatinous Phosphate of Calcium.

IT is well known that the ordinary tribasic phosphate of calcium, in dry powder, is but slowly and sometimes imperfectly soluble in dilute acids or in the gastric juice. If, however, it be in a freshly precipitated or gelatinous condition, the opposite is the case, it being then quite easily soluble.

Such a gelatinous tribasic phosphate may be prepared by the following simple process given by C. Tanret, which consists in adding one molecule of lime to the ordinary acid phosphate of calcium.

$CaH_4 2PO_4$	+	$2CaO$	=	
Acid phosphate of calcium		lime		
= $Ca_3 2PO_4$	+	$2H_2O$		
Tribasic phosph. calcium		water		

The requisite quantity of acid phosphate of calcium (theoretically 234 parts) having been dissolved in water, an equivalent amount (theoretically 112 parts) of lime or (148 parts) of slaked lime (CaHO) is dissolved with the aid of sugar or syrup, and the two solutions then mixed. There results a precipitate which is so gelatinous that 1 gramme of it added to 100 grammes of water will in twenty-four hours scarcely settle enough to leave a small layer of liquid on the surface. As the acid phosphate of calcium is very hygroscopic, and generally contains an excess of water, and as the calcium hydrate is generally impure, it will be of advantage to use the following proportions which have been found to work well in practice: 2 parts of crystallized phosphate of calcium, and 1 part of slaked lime, which will yield about 2 parts of the gelatinous tribasic phosphate.—*Journ. de Pharm.*

Antiseptic Gauze.

PLEVANI, of Milan, prepares antiseptic gauze in the following manner:

Two hundred parts of Burgundy pitch and 100 parts of stearin are dissolved in 2,000 parts of alcohol, and 180 parts of carbolic acid added. This quantity, in *grammes*, is sufficient to impregnate 80 meters (87 yards) of gauze. The latter is first laid into a square pile, pressed into a zinc trough, heated for several hours in a steam-bath, and then impregnated with the mixture. After having remained a few hours longer in the warm trough, it is pressed. A few minutes' exposure to the air is sufficient to dry it enough to enable it to be rolled and wrapped in parchment paper.

[The above formula is quoted in one of our exchanges (from *L'Orosi*) as having been specially designed with a view to cheapness. At the price of alcohol in this country, and with the impossibility of obtaining any alcohol for such purposes with the duty remitted, the above formula is, of course, quite expensive. We have had large experience in making gauze, and have published our formula several times; yet, without special apparatus to recover at least a portion of the alcohol, the resulting gauze generally cannot compete in price with that made by the large manufacturer, who does *not* use alcohol or but little of it.—ED. A. D.]

The Essential Oil Industry at Grasse.*

THE fame of Grasse is founded upon the essential oils obtained there from wild or cultivated plants. Of the former may be mentioned:

1. *Lavandula Spica* Chaix, *aspic* in French, which is found abundantly about Grasse and in the contiguous districts.

2. *Lavandula vera* D. C.; occurs in higher, mountainous localities.

Both of these lavenders possess strong woody and, no doubt, very hardy stems. Still stronger are those of

3. *Thymus vulgaris* L., a perfect ornament of the mediterranean region, where it may be met with abundantly, though not at high altitudes, in the open woods of the mountains, as well as in the sunny coast districts.

4. *Rosmarinus officinalis L.* The upright, though always crooked stems of this labiate plant or shrub, growing to a height of 2 meters, and often several centimeters thick, are certainly not equalled by any other European species of this family.

The oils of these plants form important articles of export at Grasse. They require no cultivation, since the young leafy or flowering shoots, which are removed by the distillers, constantly renew themselves. The great oil houses of Grasse make contracts with the villages of the surrounding country, which latter thereby acquire the privilege of working certain large districts. The distillation is carried on by peasants, who erect their stills at the place where the plants are most abundant, and who deliver the oils in the city. Many of these perambulating stills (*alambics voyageants*) are owned by the large houses in Grasse. This method of doing business is probably quite old.

Prof. Flückiger was informed by Mr. Roure, one of the largest dealers at Grasse, that the annual amount of these oils exported from Grasse is about the following: of *Lavandula vera*, 80,000 to 100,000 kilos; of *Thymus vulgaris*, 40,000; of *Lavandula Spica* and of *Rosmarinus*, each 20,000 to 25,000. The quantities exported from Grasse are probably sufficient to cover the demand of the whole world; excepting perhaps the oil of rosemary, of which about 20,000 kilos are produced annually in Dalmatia.

Of the oils which are prepared, not by villagers, but in the laboratories of the manufacturers, those of the genus *Citrus* are chiefly to be named, particularly *oil of neroli*. The flowers of *Citrus vulgaris* Risso, which contain only about one-tenth per cent of this oil, are not subjected to distillation with the primary view of obtaining this oil, but really to obtain the enormous quantity of orange-flower water for which Grasse is so celebrated. The oil of neroli is only a by-product, but a very valuable and costly one. According to Mr. Roure, about 2,000 kilos of this valuable oil are annually obtained, yet the quantity which is exported is very much larger. Any one willing to pay the price can ob tain pure oil of neroli, but the perfumers and wholesale druggists, when sending their orders, usually limit the price more or less. Hence, in order to satisfy these customers, the producers add "essence de petit grain," which is, however not any longer distilled from the "petit grains," that is, the small unripe fruits of the bigarade-orange tree, but from the *leaves* of the latter. No other species of *Citrus*, indeed, is so richly provided with fine aroma, even to the leaves, as the bitter-orange tree, "le bigaradier."

The flowers of the sweet-orange tree yield a much less valuable oil, and are not usually subjected to distillation. The sweet orange plays but an insignificant rôle at Grasse alongside of the bitter, and the bergamot and the lemon do not occur there at all.

Large receptacles (tin canisters and cisterns of masonry) are provided for the reception of rose-water. The small quantity of oil of rose obtained during the distillation of the many thousand kilos of roses is probably of as fine a quality as that obtained in the Balkan or in India, yet, in spite of the nearly equal geographical latitude with the latter, the Provence oil of roses contain much more of the solid valueless constituent, which is kept in solution by the liquid portion, to which alone the aroma is due. Every 12,000 kilos of roses produce about 1 kilo of the oil. Demands of customers which exceed the domestic production are supplied by furnishing Turkish oil.

Oil of orris, or orris-butter ("*beurre d'iris*"), is justly a great favorite with perfumers. This oil excels many other fine aromas by the great durability of its pleasant and mild odor. Even with the most careful operation, not more than about one-tenth per cent of it can be extracted from orris-root. The above-named firm prepares annually from four to ten kilos only. An equal quantity is probably also distilled in Leipzig and in London. In Grasse, the kilo of *beurre d'iris* costs 1,500 to 1,800 francs, and curiously enough, the manufacturers obtain their supply of orris-root from Florence and Verona, while it is quite certain that *Iris germanica* and other species of *Iris* would equally well thrive upon the hills and mountains of the lower Provence, as in Tuscany or about Verona.

Besides the immense industry connected with the distillation of the oils so far described, some other aromatic products are occasionally worked for their aromas, but their quantity is unimportant. But the next greatest source of profit is the extensive manufacture of pomades (*pomades*) and extracts (*extraits*), which are obtained either from such flowers as contain but small proportions of essential oils, namely, first, the already mentioned bigarade flowers, from which oil of neroli is obtained, and second, the rose. Or from those which contain such minute proportions that it would be practically impossible to collect it by distillation. Such are:

1. *Cassie*, which is the French name of the small handsome yellow flower-heads, of *Acacia Farnesiana* Willdenow, a small tree which was first transplanted from the West Indies and Central America into the Farnesian gardens of Rome.

The fine odor of the flowers led to their introduction into the Provence, which appears not to have taken place, at least for industrial purposes, before 1825. At present. "*Cassie*" is very carefully and largely cultivated in the whole district between Cannes and Grasse. The trees are kept small; the plantations are frequently owned by the manufacturers or other land-owners, and are cultivated by tenants, who hold their lease under the very simple and ancient custom to pay half the produce of the farm. The same system applies there also to the aromatic plants below described, as well as to olives, and seems to have great advantage in spite of the difficulty of controlling the yield. Prof. Flückiger received the assurance from the owners that the honesty of the tenants in these regions could be actually relied upon, and that the system was profitable to the owners in spite of their having to pay taxes and to foot the expenses of repairs.

2. *Jasmin.* Though the fields near Grasse are planted with *Jasminum officinale* L., which was probably first brought to Italy during the sixteenth century from Western Asia or India, yet it has been found more advantageous to graft upon it another Indian species, *Jasminum grandiflorum* L., having larger and more aromatic flowers, which probably had been brought to Europe already before the time of Rheede. This plant is very tender, requiring to be protected during winter even in such a fine climate as that of the Provence, by covering the small shrub with earth. As only the flowers are of importance, the plants are kept small and planted close together in regular rows. During Prof. F.'s visit (April), the young shoots were pruned, which required considerable labor. The plant flowers in August. Under these circumstances, it might be advisable to try experiments with *Jasminum Sambac* Vahl, which has a still stronger aroma, and is also esteemed higher in India.

3. *Jonquille. Narcissus Jonquilla* L., probably of oriental origin, bears two to five very aromatic yellow flowers, with short, funnel-shaped tube. The name of the species (Ital.: *Giunchiglia*) refers to its almost cylindrical rush-like leaves, which somewhat resemble those of species of *Juncus*.

4. *Reseda*, from *Reseda odorata* L., a common garden-plant throughout Europe, and said to be originally from Egypt.

5. *Tuberose. Polianthes tuberosa* L., an amaryllidaceous (Mexican) plant, from the section of *Agaveæ*, the handsome white flowers of which have caused the selection of the genus-name (πολιός, white or gray). Its Mexican name is *Omizochitl*, or bone-flower. It has been a favorite ornamental plant in Europe since the last century, and is nowhere cultivated in larger quantities than near Grasse.

6. *Violet. Viola odorata* is not grown in open fields like the other perfume plants, but in the open olive groves extending in great beauty over hill and dale.

These are all the odorous plants which form the object of the industry of Grasse, and there appears to be no desire either on the part of the makers, or the consumers, to introduce new fashions, either in form of new processes, or of additional products.

The "pomades" are prepared in two ways, either by "infusion," or by "enfleurage." [On these see especially NEW REM., vol. vi., 1877.] In spite of the scrupulous care bestowed upon the preparation of the "infusions à chaud" (warm infusions), the odorous fats still retain the disagreeable property of gradually becoming rancid. It might be supposed that this could be avoided by employing, in place of fat, the unchangable paraffin in the form of Unguentum Paraffin of the Germ. Pharm., or in form of the American petrolatum (vaseline, etc.). Yet Mr. Roure assured Prof. Flückiger that this is by no means the case. The exact reason *why* it is unsuitable is not known. [It is undoubtedly due to the fact that vaseline, petrolatum, or any other similar compound are likewise prone to become rancid through a sort of oxidation process, as has repeatedly been proved by different experimenters.—ED. AM. DRUGG.] Yet the unsuitability of paraffin is so decided that it spoils the pomades even when only added to them.

When the most delicate and fugitive aromas are to be extracted the process of enfleurage is used (see NEW REM. for 1877).

A portion of the pomades obtained either by infusion or by enfleurage is used in the preparation of the aromatic extracts ("extraits"), that is, the alcoholic solutions of the odorous matters obtained from the pomades. For this purpose, the latter are placed in copper drums in which they are agitated for hours with alcohol, by means of a stirring apparatus. When the alcohol, which has taken up the aroma and scarcely any fat, has been separated, the fat is put into stills in order to recover the alcohol retained by it. But the fat itself can no longer

* Abstract of an article by Prof. F. A. Flückiger in *Arch. d. Pharm.*, 1884, 473.

be used for *pomades*, at least it is not found practical to use it again; hence it is sold to soap-makers.

simple Filter for obtaining physiologically pure Water.

UTILIZING the method by which Pasteur, in his laboratory, secures the complete separation of germs or microbes from water, namely, by causing it to pass through a porous vase made of unenamelled porcelain, Ch. Chamberland suggests the following way of securing pure water: The water as it is delivered under pressure (say of about thirty pounds) is made to enter a porous tube, of nearly eight inches in length and one inch in diameter, which will permit about forty quarts of water to pass through its walls, under the above conditions. It is only necessary to multiply the tubes in order to obtain a larger supply. The tubes must be connected in such a way that the water is made to pass from the outside to the inside, where it flows off into a receptacle. It is, therefore, quite easy to clean the tubes, since only their outer surface is coated with the suspended matters. The cleaning may be performed either by scalding them with boiling water, or by heating them in an oven to destroy all organic matter.—After *Rép. de Pharm.*

FILTERING LIQUIDS WHICH ARE EASILY DECOMPOSED BY AIR.

THE accompanying illustration exhibits the manner in which a rapid filtering apparatus, devised by Vollmar (F. A. Vollmar Sohn in Kempten, Rheinish Prussia) operates.

The filter is hermetically closed while working. It is lined, inside, with filtering paper, and the filtration takes place so that that the turbid liquid enters the filter below, passes through the paper, and is discharged clear at the top, where a pipe conveys it into a receptacle. This arrangement is of special service for filtering wines or other delicate liquids which should not be long exposed to air. A siphon inserted into the cask containing the turbid liquid, which stands on an elevated place, conveys the liquid to the filter, and from there it flows into the new receptacle. If the liquid is very sensitive to air and a layer of oil cannot affect its flavor, some pure olive oil may be poured into each cask, and the delivery tube leading from the filter be pushed down to the bottom of the receiving cask. In this way the liquid is absolutely protected from contact with air.

Application to Malodorous Feet.

THE last edition of the German Pharmacopœia contains a *Pulvis Salicylicus cum Talco* which is specially intended to be used as an application to malodorous feet, and was introduced primarily for use in the German army. Since its use, in the loose powder-form, however, has been found to be rather disagreeable, owing to its dustiness, and as it is not quite effective enough, the German War Department has adopted as a substitute for it the following paste:

Salicylic acid.....	2 parts.
Tincture of benzoin.....	5 "
Benzoated mutton tallow.100	"

The salicylic acid is dissolved in the tincture of benzoin, and the solution added to the melted tallow, which is prepared by digesting 100 parts of mutton tallow with 5 parts of benzoin. After the mass has been stirred a few times, it is poured out into suitable tin boxes.—*Drog. Zeitung.*

Determination of Nitrates.

MR. ARNOUD in *Comptes Rendus* describes a mode of determining nitric acid by precipitation as cinchonamine nitrate which is applicable to the determination of the nitrates contained in natural waters and in plants.

Cinchonamine nitrate is almost insoluble in water acidified with from 10 to 15 per cent of hydrochloric acid. It is therefore very easy to detect the nitrates qualitatively by bringing the solution to this condition. But for an exact determination it is impossible to employ this means, as, in drying, the acid becomes concentrated, and finally attacks not only the paper of the filter, but the cinchonamine nitrate itself.

After many attempts the author has succeeded in obtaining very good results by operating as follows:

The liquid containing the nitrates is neutralized with soda if acid, and with sulphuric acid if alkaline, the essential point being to obtain neutrality. The chlorine of the chlorides, if any are present, is eliminated with silver acetate, any excess of the latter being removed by the addition of a few drops of sodium phosphate. The filtrate is then evaporated almost to dryness, and filtered anew if it is not absolutely clear, acidulated very slightly with a drop of dilute acetic acid. The liquid is then precipitated at a boil with a hot solution of cinchonamine sulphate. Cinchonamine nitrate falls down immediately in a crystalline state. It is let stand for twelve hours in a cool place. It is then brought upon a filter and washed with an aqueous solution of cinchonamine nitrate, saturated at the temperature of the atmosphere so as to remove any cinchonamine sulphate.

The object of this method of washing is to avoid dissolving any trace of the cinchonamine nitrate, however slight. Pure water, employed instead, would dissolve about 2-1000ths of its weight of the cinchonamine nitrate. The precipitate is dried at 100° and weighed, being perfectly pure.

Cinchonamine nitrate has the formula, $C_{19}H_{24}N_2O,NO_3H$.

Its high molecular weight is advantageous for the determination of nitric acid, as 359 parts cinchonamine nitrate represent 54 parts nitric acid, 101 potassium nitrate, or 82 parts calcium nitrate.

In this manner the author has determined the nitric acid contained in natural waters in the state of nitrates, probably as calcium nitrate, and has obtained at different times perfectly accordant results. For well-waters he evaporates one liter of the sample to dryness, takes up the residue in alcohol at 40 per cent, and expels the alcohol by evaporation in the water-bath. The aqueous solution resulting from this treatment contains all the nitrates as well as a certain quantity of chlorides. The analysis is continued as indicated above.

For determining the nitrates contained in plants the procedure is slightly modified. The plant is triturated and exhausted with boiling water. The liquid is evaporated to the consistence of an extract and redissolved in alcohol at 40 per cent. The alcohol is expelled by evaporation on the water-bath, and in the liquid resulting the chlorides are eliminated by the addition of a small quantity of neutral lead acetate, any small excess of which is removed by means of a few drops of sodium sulphate. In the filtrate the nitrates are determined as above.—*Chem. News.*

TAKING THE SPECIFIC GRAVITY OF POROUS BODIES.

G. FLEURY proposes to ascertain the specific gravity of porous substances by measuring the volume of metallic mercury which they displace when immersed in the latter. The specific gravity thus obtained is, of course, only apparent, or that of the body in its unbroken condition. When the substance is powdered, its specific gravity will be quite different. The author uses for the determination a simple apparatus made of a wide and of a narrow glass tube, of the shape shown in the cut. The substance is to be given an octagonal prismatic shape of the volume of about 10 cubic centimeters, terminating at one end in an octohedral pyramid. The apparatus having been filled with mercury until the latter runs out from the lateral aperture at *D*, and all remaining gas-bubbles having been removed by means of a piece of iron wire, the substance is slowly pushed below the surface of the mercury by means of a wire, and the displaced mercury, which flows from *D*, caught in a suitable measuring vessel. The temperature of the mercury having been taken account of, the true volume of the same, corresponding to a certain temperature, is easily ascertained, and, by dividing the weight of the body by the volume of mercury displaced, the specific gravity of the former is ascertained.—*Journ. de Pharm.*, 1884, Oct., p. 255.

Remedy for Gout.

DR. J. MORTIMER GRANVILLE publishes in the *Lancet* (Aug. 10th, p. 272) a prescription for the relief of gout, which he states gives satisfactory results in acute and subacute gout, relieving the pain almost immediately, reducing swellings, and raising the proportion of urea in the urine from 50 to 100 per cent. The formula he gives is as follows:

Ammonii chloridi.....	ʒ iv.
Potassii chloratis.....	ʒ i.j
Glycerini.....	ʒ xij.
Tincturæ Iodi	ʒ ij.
Aquæ ad.....	ʒ xij.

Misce.

The dose is two tablespoonfuls every third, fourth, or sixth hour.—*Pharm. Journ.*

Bulrush-Wood Bandages.

IN neighborhoods where it is plentiful, the wood of the bulrush is employed by the poor for dressing wounds. Dr. Klammann finds that it answers for this purpose remarkably well, since it is not only an excellent absorbent, but, being very soft, fits itself admirably to the joints. The best time for gathering the wood is autumn or winter.—*Deutsch. Med. Zeit.—Chem. and Drugg.*

[It is possible that it is the wooly top of the bulrush which is easily disintegrated, and not the woody stalk that is meant.—ED.]

Refining Sugar and Molasses by Means of Concentrated Acetic Acid.

PURE sugar scarcely dissolves in concentrated acetic acid, whilst all the impurities of cane-sugar are readily soluble in it. In the present process, dry cane-sugar is heated at about 70° in closed vessels, with 50 to 70 per cent of its weight of concentrated acetic acid, or molasses concentrated to 45 to 50°B., with 75 to 90 per cent. When cool, the acetic acid is poured off, and the sugar machined and dried, when it is ready for the market. The acetic acid is recovered by distillation.—A. WERNICKE, *Bied. Centralbl.* and *J. Chem. Soc.*

White-Wash as Coating for Iron Pipes and Apparatus.

MILK of lime is recommended as a very durable and superior coating for such iron apparatus and surfaces (stove-pipes, hoods, etc.), as are much exposed to heat. The surface of the iron must first be thoroughly cleaned from rust, and the first layer of white-wash immediately applied. This causes the immediate production of rust to which the lime strongly adheres. Further coats of lime are then applied, and may be renewed from time to time.—*Erfind. and Erfahr.*

Disinfecting Mixtures.

GAWALOVSKI suggests the following mixtures for disinfecting purposes:

	PARTS.
1. Crude permanganate of sodium	2
Sulp. of iron (ferrous)	45
Water	53
2. Chloride of zinc	2 or more.
Water, acidulated with hydrochloric acid, to make	100
3. Anhydrous nitrate of copper	7
Chloride of sodium	1
Sulphuric acid (strong)	1
Water	91
4. (As disinfecting powder:)	
Sulph. of iron (ferrous)	20
Sulph. of calcium, dry	75
Carbol. acid, crude, 90%	5

—*Pharm. Rundschau* (Leitmeritz).

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,376.—**Hessian Crucibles** (St. Louis).

You will always find a large depôt of Hessian Crucibles at the leading dealers in chemical apparatus in New York (see our advisement columns). There are various places in Germany where they are manufactured, and if you need special sizes, it might be well to correspond with one of the manufacturers, as, for instance, Julius Gundlach in Cassel (Hessen, Germany).

No. 1,377.—**Syrup of Hypophosphite of Iron, Quinine and Strychnine** (C. B. E., California).

Certain physicians not infrequently prescribe preparations like the above merely by title, and rely upon the pharmacist to dispense either the preparation of some well-known manufacturer, whose name is often expressly indicated on the prescription, or at least one of the same strength in active ingredients.

As a general rule, it is customary to adjust the strength of preparations containing the above ingredients so that they contain, in one teaspoonful, 1 to 2 grains of the iron salt, 1 grain of the quinine salt, $\frac{1}{10}$ grain of the strychnine salt.

As it is probably immaterial whether the alkaloids be in the state of hypo phosphite or that of any other salt, the sulphates may be used without hesitation. Hence the following formula will answer.

Solution of Hyposulphite of Iron (N. Y. and B. Form.)	768 min.
Sulphate of Quinine	128 grs.
Sulphate of Strychnine	2½ grs.
Citric Acid	2 fl. dm.
Water	2 fl. oz.
Syrup, enough to make	16 fl. oz.

Dissolve the alkaloidal salts in the water with the aid of the citric acid and a gentle heat, and add the solution to eight fluidounces of syrup. Then add the solution of hypophosphite of iron and enough syrup to make one pint. The product contains in one fluidrachm, one grain each of hypophosphite of iron and of sulphate of quinine, and $\frac{1}{10}$ grain of sulphate of strychnine.

If hypophosphite of quinine and strychnine are absolutely required, then the following method will yield the quantities necessary for a pint of the above syrup, corresponding to one grain of hypophosphite of quinine, and $\frac{1}{10}$ grain of hypophosphite of strychnine in the fluidrachm:

Calcium Hypophosphite	50 grs.
Quinine Sulphate	184 "
Strychnine Sulphate	2$\frac{1}{10}$ "
Water	2 fl. oz.
Alcohol	8 "

Dissolve the calcium hypophosphite in the water, and filter the solution. Then dissolve the sulphates of quinine and strychnine in the alcohol, mix the two solutions, and shake frequently during one hour. Strain the mixture through a piece of densely woven linen or muslin, and express as much as pos sible. Filter the expressed liquid and evaporate it to nearly dryness. Then re-dissolve the whole with the aid of citric acid, and prepare the syrup as before.

The formula for the solution of hypophosphite of iron will be found elsewhere in this number.

No. 1,378.—**"Calisaya and Soda"** (W.).

This beverage has been in fashion for a long time. It is usually prepared by drawing soda into a tumbler into which about one-half fluid ounce of calisaya elixir has previously been poured.

No. 1,379.—**Curry Powder** (C. W., New York).

One of our reference works has the following, though we have strong reason to believe that the true formula for genuine curry has never been published.

Coriander, 6 drachms; turmeric, 5 scruples; fresh ginger, 4½ drachms; cumin seed, 18 grains; black pepper, 54 grains; poppy-seed, 94 grains; garlic, 2 heads; cinnamon, 1 scruple; cardamom, 5 seeds; 8 cloves; 1 or 2 chillies; half a cocoanut ground; all but the last to be ground on a stone.

No. 1,380.—**Manufacture of Alcohol, etc.** (W. S. J.).

The work which you refer to has the following title: *Handbuch der Spiritusfabrikation*, von Dr. Max Maercker. (Third edition. 8vo, Berlin. *m.* 22.50). This is one of the most complete works on the subject, and comprises the improvements in apparatus and processes down to the present year.

Another equally valuable work is the following: *Gährungs-Chemie für Praktiker*, von Dr. Joseph Busch [Chemistry of Fermentation]; in 4 parts. 8vo, Berlin. 1. Yeast, etc. 8*m.* 2. Malt, Extract of Malt, and Dextrin. 8*m.* 3. Beer. 12*m.* 4. Alcohol and Compressed Yeast. 12*m.*

No. 1,381.—**Solution of Hypophosphite of Iron** (E. S. O.).

A formula for this is contained in the New York and Brooklyn Formulary. It is as follows:

Sulphate of Iron and Ammonium	924 grs.
Hypophosphite of Sodium	608 "
Citrate of Potassium	600 "
Glycerin	1 fl. oz.
Water, enough to make	6 "

Dissolve the sulphate of iron and ammonium and the hypophosphite of sodium each in 8 fl oz. of water, and, if necessary, filter the solutions separately. Then mix them, set the mixture aside for several hours, transfer the resulting magma to a close linen strainer, and wash the precipitate with ten (10) fluidounces of water. Allow it to drain, and express it forcibly. Transfer the precipitate from the strainer to a mortar, add to it the citrate of potassium, and triturate until a perfectly smooth paste results. Then add the glycerin, and gradually, while stirring, enough water to make the product measure six (6) fluid ounces. Filter if necessary, and keep the solution in small, well-corked vials, which should be completely filled.

NOTE.—The theoretical quantity of hypophosphite of iron resulting from the reaction between the ingredients above given is 480 grains, and in practice, this is very closely obtained. One (1) grain of hypophosphite of iron is, therefore, contained in six minims of the solution.

No. 1,382.—**Artificial Peach Essence** (W. H. R.).

According to some authorities this may be prepared by mixing:

Acetate of ethyl	5 parts.
Formate of ethyl	5 "
Butyrate of ethyl	5 "
Valerianate of ethyl	5 "
Œnanthate of ethyl	5 "
Sebacate of ethyl	1 part.
Salicylate of methyl	2 parts.
Glycerin	5 "
Aldehyde	2 "

It is, however, well to remember that, by following such semi-scientific formulæ, a good product is but *seldom* obtained. Many of these formulæ have been written down without having been actually carried out in practice. Our correspondent will, no doubt, find it cheaper, instead of attempting to prepare this compound from the above ingredients (some of which, we believe, are not readily obtainable in the market) to purchase the essence ready made.

No. 1,383.—**Violet Ink** (Apprentice, Wilmington, Del.).

Any fine water-soluble anilin violet will answer for this purpose. The best plan is to order or purchase it with the specification "for violet ink." Dealers will then usually supply the most suitable.

The best proportions for making the ink are: one part of the anilin violet, three parts of glycerin, and six parts of best gum arabic dissolved in ninety parts of water (or, according to Hager, in a decoction of quillaia or soap bark). A little oil of cloves may be added to prevent mould.

No. 1,384.—**Color of Fresh and Old Gentian Root** (F. W. K.).

Fresh gentian root is yellowish-gray externally, and white or nearly so internally. Some species have a more or less deep tint externally. On dry-

ing, the external portions gradually become darker, and proportionately also the inner portions. In moderately old roots the exterior is dark reddish-brown, and this tint darkens still more in very old roots especially if they are exposed to light.

No. 1,385.—**Plastic Clay** (B. A. E., Shamokin, Pa.).

We infer from your letter that modelling clay is what you refer to. This can be had of dealers in artist's materials in most large cities. See our advertising columns for addresses of such houses.

A very serviceable clay for modelling can be made by mixing a small amount of glycerin with finely ground clay, free from grit, this prevents too rapid evaporation of moisture and keeps its in condition for working.

No. 1,386.—**Vinegar from Acetic Acid** (R. C. Mch.).

Glacial Acetic Acid (not below 99%).....15 parts.
Alcohol..... 1 part
Water.....235 parts

Mix and set aside for a few weeks—the longer the better—when enough acetic ether will have been developed to give it the full, clean aroma of fine vinegar.

If officinal acid is used, the proportions will be:

Acetic Acid .....42 parts
Alcohol..... 1 part
Water..... .208 parts

Caramel may be used for coloring if desired, but anilin colors should not be employed under any circumstances.

No. 1,387.—**Use of Capital Letters in Naming Chemicals and Drugs** (W. U. Z.).

"Is it wrong when writing the names of drugs and chemicals to begin them with capital letters?"

This depends sometimes on the degree of emphasis which is desired to give to the terms. In a working formula it is quite usual to employ capitals, as may be seen in the last U. S. Pharmacopœia. On the other hand, in the case of substances incidentally mentioned in the course of a sentence, and when there is no occasion for emphasis, it is the general custom to use small initials, the same as would be done with other common nouns or adjectives. In the case of *botanical* names the custom varies. English plant-names, of course, follow the usual rules of orthography. Scientific plant-names, however, such as Hyoscyamus, Conium, Piper, etc., are, by most authors, begun with a capital letter; and we think this to be the proper course.

No. 1,388.—**Foreign Drug-Clerks in Germany** (N. S.).

Since the beginning of 1883, the German Bundesrath (Parliament) has published an ordinance which permits the employment in German pharmacies of only such assistants as have, in addition to passing the usual professional examination, completed their studies at a "gymnasium" (high-school), and acquired their pharmaceutical knowledge in a German pharmacy.

The chief object of this ordinance was to alleviate the evils incidental to an excessive supply of young pharmacists, and to provide chances for those who had passed through German schools, instead of taking apprentices from beyond the borders. There is no expectation that this ordinance will be repealed for some time to come.

No. 1,389.—**Artificial Methylic Alcohol** (W. H. R., New York).

The correspondent desires information as to how to make an artificial methylic alcohol, or, as he expresses it, an "imitation of methylic alcohol." Now this body is under all circumstances artificial, that is to say, it does not exist naturally, but is the product of chemical action. It is obtained as a by-product in several industrial processes, such as the distillation of wood and the manufacture of sugar from beets. It has also been made by synthesis—that is, by bringing together the elements of which it is composed, or by starting with organic compounds which had themselves been made synthetically. Some of these are:

1. Marsh-gas converted into methyl chloride, which is then heated with solution of potassa to 100° C. (Berthelot).

2. Hydrochlorate of methylamine is heated with silver nitrite (Linnemann).

3. Dry calcium formate, when distilled, yields, among other substances, methylic alcohol.

No. 1,390.—**Putz Pomade.**

A correspondent writes that a preparation having properties quite similar to that sold under the above title may be made of:

Rotten stone (levigated)...1 part.
Subcarbonate of iron.....3 parts.
Lard or olive oil, sufficient to make the resulting product of the consistency of lard.
Oil of bitter almond, q.s. to perfume.

Another writes us that oleic acid is an excellent vehicle for the combination of the polishing powders, and preferable to the ones above mentioned.

No. 1,391.—**The Chemistry of Antipyrin** (O. H. J. and others.)

Dr. Ludwig Knorr has recently published the long expected paper giving an account of the chemistry of new antipyretic remedy *antipyrin*, from which we select the following as the salient points for the benefit of our correspondents:

The author has discovered a series of bodies, all of which appear to have as common origin, a hypothetical base called by the author *chinizin*, to which he assigns the constitution: $C_9H_{10}N_2$.*

One of the derivatives of this hypothetical basis was described by the author some time ago under the name *methyl-oxy-chinizin*. This is formed by the condensation of equal numbers of molecules of ethyl diacetic acid, or ethyl aceto-acetate and phenylhydrazin:

$$\underset{\text{phenyl-hydrazin}}{C_6H_8N_2H_2} + \underset{\text{ethyl diacetic acid}}{C_8H_{10}O_3} = \underset{\text{methyl-oxy-chinizin.}}{C_{10}H_{10}N_2O} + \underset{\text{water}}{H_2O} + \underset{\text{alcohol}}{C_2H_5OH}$$

(Phenylhydrazin $C_6H_8O_2$ is prepared as follows: 20 parts of anilin are dissolved in 50 parts of hydrochloric acid (1.190) and 80 parts of water, and to the cold solution is added enough nitrite of sodium, dissolved in twice its weight of water, and acidulated with hydrochloric acid, until the anilin is converted into diazobenzolchloride. The solution is poured into an ice-cold saturated solution of sodium sulphite (2 mol. of Na_2SO_3 for 1 mol. anilin), and as soon as a sample of the separated crystals dissolves in the supernatant liquid, on warming, without elimination of gas, the whole is cautiously warmed on the water-bath, so as to redissolve most of the separated salt. It is now carefully neutralized with hydrochloric acid. Next it is acidulated with acetic acid and mixed with zinc-dust until the liquid has become colorless. The liquid is filtered, heated to boiling, mixed with about ½ of fuming hydrochloric acid, and the separated hydrochlorate of phenylhydrazin decomposed with solution of soda. Most of the hydrazin is thereby separated as an oil, the remainder is shaken out with ether. The crude hydrazin is dehydrated over carbonate of potassium and then rectified. It then formed a faintly aromatic oil of spec. gr. 1.091 at 21° C., very resisting towards reducing agents, but very easily destroyed by oxidizing agents.)

(Ethyl diacetic acid is prepared as follows: 100 parts of metallic sodium in small pieces are added to 1,000 parts of *pure* acetic ether which has repeatedly been distilled over sodium. As soon as the mixture ceases to become warm, it is gently warmed for two or two and a half hours on the water-bath (under an upright condenser), until the sodium is all dissolved. To the still warm liquid, 550 parts of 50% acetic acid, and after cooling, 500 parts of water are added, the whole is shaken and the upper layer which has separated removed. This is washed with a little water and distilled, first on the water-bath, and then over an open flame. The several portions between 100°–130°, 130°–165°, 165°–175°, 175°–185°, 185°–200° are caught separately and the fractional distillation repeated three times, so as to separate all portions boiling between 175° and 185° of which only about 175 parts are obtained.)

According to Dr. Knorr's investigations, methyl-oxy-chinizin may be regarded as derived from the hypothetical base *chinizin* (see foot-note) by the substitution of methyl for the hydrogen distinguished by the letter *a*, and of oxygen for the two hydrogens marked *b*.

This substance has both acid and basic properties. If the inside-group NH is replaced by an alcohol-radical, the acid properties disappear.

All these bodies have antipyretic properties.

On heating methyl-oxy-chinizin with an excess of phenylhydrazin to 170° C. or better still to boiling, two molecules of it unite with elimination of two atoms of hydrogen, and form *dimethyl-oxy-chinizin* to which the plainer name *antipyrin* has been given:

$$2C_{10}H_{10}N_2O = \underset{\text{antipyrin}}{C_{20}H_{18}N_4O_2} + \underset{\text{hydrogen.}}{H_2}$$

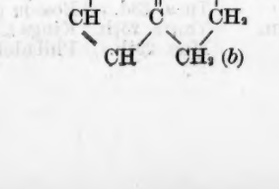
This substance has the properties of the simple methyl-oxy-chinizin, but differs in its behavior towards *nitrous acid*, which immediately eliminates two atoms of hydrogen and converts it into a *blue* coloring matter, which, by reducing agents, may be again converted into dimethyl-oxy-chinizin.

Dr. Knorr was led by several considerations to cause this body to be examined as to its antipyretic effects. The results of these have already been communicated in a previous number of this journal.

It may be added here, that antipyrin has been used with the most satisfactory results in Bellevue Hospital, for the purpose of reducing febrile temperature. It is a pity that the supply does not seem quite regular as yet, since there is occasionally not a grain to be obtained anywhere. The substance is certain to have a great future unless a still more active and palatable compound should be discovered.

Dr. Knorr himself states (in his paper, *Berichte d. Deutsch. Chem. Ges.*, 1884, p. 2,038) that antipyrin is useless in malaria.

*The author gives the following diagram to indicate the constitution of the substance. This diagram will be found to have analogy to the assumed constitution of naphthalin, which is regarded as a coalition of two benzol-nuclei having two carbon atoms in common It should not be forgotten that these diagrams do not pretend to explain or to picture the actual position of the constituents in the molecule. They only mean to indicate the relationship of the constituents to each other, and to serve as an aid to the memory in regard to these constituents, and their possible substitution or withdrawal:



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THE notable feature of this work, as compared with other American textbooks, is the employment of the metric system of weights and measures (the quantities, as they are commonly expressed, being added in parenthesis), and the clinical character of the method employed in treating the subjects.

We find in the text many practical matters which are very commonly ignored in the treatises of this class, but which are of great importance in the management of patients and their diseases.

The work quite justifies the reputation so long borne by its author for practical wisdom and skill as a teacher.

MEDICAL RHYMES. Selected and compiled from a variety of sources by HUGO ERICHSEN, M.D., with an Introduction by WILLIS P. KING, M.D. Illustrated. St. Louis: J. H. Chambers & Co., pp. 220, 8vo.

THIS is a charming collection of poems upon topics of interest to medical readers, and embraces many of the enjoyable things which have appeared of late years in medical and secular prints. The selection and arrangement have been made with unusual taste. Numerous and well-made illustrations add to the interest of the text, and the printer's work has been done with care.

We feel a personal obligation to the compiler for his labors, and are sure that our readers who can appreciate the value of an interesting collection of short sketches which may serve for their own amusement or to lessen the tedium of their waiting-room for their patients, will find this well worth its cost.

PERIODIKON TES EN ATHENAIS PHARMAKEUTIKES HETAIRIAS. [Journal of the Pharmaceutical Society of Athens.] First year. July, etc. 8vo, Athens.

THIS new journal, published monthly for the Society by P. Angelopoulos, D. Varouchas, K. P. Vratimos, and G. Kantzike, promises to be of considerable interest, and to awaken a spirit of progress among the pharmacists in Greece.

NATRIUMHYPOBROMIT ALS REAGENS zur qualitativen und quantitativen Bestimmung des Ammoniakharzes. Von P. C. PLUGGE. (Reprint from *Arch. d. Pharm.*, 21 (No. 11), 1883. From the author.)

UEBER DAS SUBERIN. Ein Beitrag zur botanischen, pharmakognostischen und chemischen Kenntniss des Korkes von Quercus Suber.—Inaug. Dissert. von KARL KUEGLER. (Reprint from *Arch. d. Pharm.* From the author.)

CALENDAR of the University of Michigan. For 1883–1884. 8vo. Ann Arbor. (From Prof. A. B. Prescott.)

"*Life's*" suggestion as to one way in which the pedestal can be paid for.

Clerk.—What do you wish, little girl?

L. G.—I want to know how much your best pills are. Your *best pills.*—*Life.*

The Netherlands Pharmacopœia.—A commission has been appointed by the Government of the Netherlands for the revision of the pharmacopœia.

NEW BOOKS.

Beilstein (Dr. F.). Handbuch der Organischen Chemie. 2te Auflage, 8vo, Leipzig. (In three vols. Published in numbers each at *Mark* 1.80.)

[This work, the first edition of which was exhausted soon after its appearance, is one of the *most indispensable books of reference* that we know of. Its aim is to give an account of *every* organic compound so far analyzed, with complete statement of the literature referring to it, preparation, properties, derivatives, relation to other substances. We believe to do a service to many our readers, who have occasion to inform themselves in subjects regarding organic chemistry, by advising them to subscribe for this work.]

Corbelli (P.). Il giardiniero medico manuale, etc. [Cultivation, etc., of medicinal garden-plants.] 16mo, Milane. 4 lire.

Delteil (A.). La vanilla, sa culture et sa preparation. 3d ed., av. 2 planch. 8vo, Bar-le-Duc, 1884.

Elsner (F.). Mikroskopischer Atlas. III. Gewürznelken, Vanille, Piment, Spanischer Pfeffer, Muskatnuss und Macis. 4to, Halle a.S. *m.* 2.40.

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Growe (W. B.). A Synopsis of the Bacteria and Yeast Fungi and allied Species (Schizomycetes and Saccharomycetes). With 87 ill. 8vo, London. 3*s.* 6*d.*

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Le Sueur (Ch.). Le Miasmifuge, ou fin de la phtisie: appareil de preservation organique et vitale. I., 4to, Paris, 1884.

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Oehme (Julius). Die Fabrikation der wichtigsten Antimon-Preparate, bes. des Brechweinsteins und Goldschwefels. Ill. 8vo, Wien (Hartleben), 1884.

Rivolta (S.). Dei parasiti vegetali. 2d ed., pp. 592. Torino, 1884. 9 lire.

Tichborne (C. R. C.) and Prosser James. The mineral Waters of Europe, including a short description of artificial waters. 8vo, London.

Vomácka (A.). Handbuch der Receptur. 8vo, Wien, 1883. *m.* 3.60.

Zapp's Anweisung zur Prüfung und Aufbewahrung der Arzneimittel. 4te Aufl. v. W. v. Gartzen. 8vo, Köln, 1883. *m.* 2.40.

PHARMACEUTICAL CALENDAR.—DECEMBER.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Tues. 2d.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.	Thurs. 11th.	Newark (N. J.) Pharm. Assoc.
	Rhode Island Chem. and Drug Clerks' Assoc.		Philadelphia Coll. Pharm.—Alumni Pharm. M.
	St. Joseph (Mo.) Pharm. Assoc.		New York Germ. Apoth. Soc.
	New York State Board of Pharm.—Albany.		Lancaster Co. (Pa.) Pharm. Assoc.
Wed. 3d.	Rhode Island State Pharm. Association.	Tues. 16th.	St. Louis (Mo.) Coll. Pharm.—Trustees' & Alumni Meeting.
Thurs. 4th.	Louisville (Ky.) Coll. Pharm.—Pharm. Meet.		Philadelphia Coll. Pharm.—Pharm. Meet.
	Philadelphia Coll. Pharm.—Alumni Soc. M.		St. Joseph (Mo.) Pharm. Assoc.
Friday 5th.	Amer. Chem. Soc.—University Building, N. Y.	Friday 19th.	Rhode Island Chem. and Drug Clerks' Assoc.
Mon. 8th.	New York City Board of Pharm., 209 E. 23d street, at 3 P.M.—Examination.	Tues. 23d.	Boston (Mass.) Druggists' Assoc.
Tues. 9th.	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.	Thurs. 25th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.
Wed. 10th.	Cincinnati Coll. Pharm.	Mon. 29th.	Philadelphia Coll. Pharm.—Stated Meeting.

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